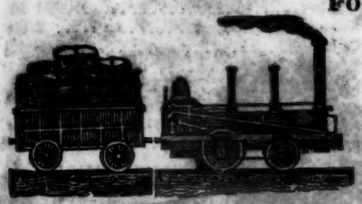
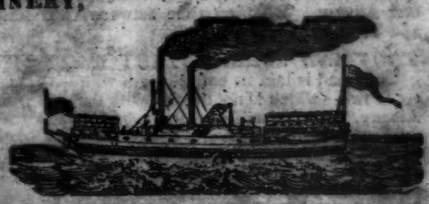
# AMERICAN RAILROAD JOURNAL,

## AND GENERAL ADVERTISER

FOR RAILROADS, CANALS, STEAMBOATS, MACHINERY, AND MINES.



ESTABLISHED 1831.



PUBLISHED WEEKLY, AT No. 105 CHESTNUT STREET, PHILADELPHIA, AT FIVE DOLLARS PER ANNUM.

SECOND QUARTO SERIES, VOL. II., No. 52] SATURDAY, DECEMBER 26, 1846. [WHOLE No. 549, VOL. XIX.


☞ **REMOVAL.**—It is respectfully requested that all *letters, exchange papers and periodicals*, for the RAILROAD JOURNAL, may be sent to PHILADELPHIA, as the Journal will hereafter be published there, and the office will be kept at the FRANKLIN HOUSE, No. 105 Chestnut street.

☞ It has required more time than we anticipated to effect the removal and arrangement of our office, consequently this number is somewhat delayed, but we hope to get arranged and up to time soon.

☞ Those subscribers who are about remitting the amount due on their subscription up to the close of the present year, will please address their letters *directly* to PHILADELPHIA, instead of New York, and *much oblige* the proprietor and editor,

D. K. MINOR.


**BOSTON AND PROVIDENCE RAILroad.** Passenger Notice. Summer Arrangement. On and after Monday, Sept. 28, 1846, the Passenger Trains will run as follows:

For New York—Night Line, via Stonington. Leaves Boston every day, but Sunday, at 5 p.m.

Accommodation Trains, leave Boston at 7½ a.m. and 3½ p.m., and Providence at 8 a.m. and 3½ p.m.

Dedham trains, leave Boston at 9 a.m.; 3 p.m., 5½ p.m., and 10½ p.m. Leave Dedham at 8 a.m. and 4½ and 9 p.m.

Stoughton trains, leave Boston at 11½ a.m. and 4·10 p.m. Leave Stoughton at 8 a.m. and 2½ p.m.

All baggage at the risk of the owners thereof.

31 1y W. RAYMOND LEE, *Sup't.*

**BRANCH RAILROAD and STAGES CONnecting with the Boston and Providence Railroad.**

Stages connect with the Accommodation trains at the Foxboro' Station, to and from Woonsocket. At the Seekonk Station, to and from Lonsdale, R. I. via Pawtucket. At the Sharon Station, to and from Walpole, Mass. And at Dedham Village Station, to and from Medford, via Medway, Mass. At Providence, to and from Bristol, via Warren, R. I.—Taunton, New Bedford and Fall River cars run in connection with the accommodation trains.

**BOSTON AND MAINE RAILROAD.** Upper Route, Boston to Portland via, Reading, Andover, Haverhill, Exeter, Dover, Great Falls, South & North Berwick, Wells, Kennebunk and Saco.

*Winter Arrangement*, 1846-7.

On and after October 5th, 1846, Passenger Trains will leave daily, (Sundays excepted,) as follows:

Boston for Portland at 7½ a.m. and 2½ p.m.

Boston for Great Falls at 7½ a.m., 2½ and 3·25 p.m.

Boston for Haverhill at 7½ and 11½ a.m., 2½, 3·25 and 5 p.m.

Boston for Reading at 7½, and 11½ a.m., 2½, 3·25 5 and 6½ p.m.

Portland for Boston at 7½ a.m., and 2 p.m.

Great Falls for Boston at 6½ and 9½ a.m., and 4½ p.m.

Haverhill for Boston at 7½, 8½, and 11 a.m. and 3 and 6½ p.m.

Reading for Boston at 7, 8½ and 9½ a.m., 12 m., 1½, 4 and 7½ p.m.

The Depot in Boston is on Haymarket Square.

Passengers are not allowed to carry Baggage above $50 in value, and that *personal* Baggage, unless notice is given, and an extra amount paid, at the rate of the price of a Ticket for every $500 additional value.

1y31 CHAS. MINOT, *Sup't.*

**THE BEST RAILROAD ROUTE TO THE** Lake and Buffalo, from Cincinnati. Take Cars to Xenia, 65 miles; take Stage to Mansfield, 88 miles; thence by Cars to Sandusky, 56 miles to the Lake; thence Steamboat to Buffalo, 230 miles.

Fare from Cincinnati to Sandusky.....$8 00
" " Sandusky to Buffalo, Cabin..... 6 00
" " " " " Steerage.... 4 50

Fare by this route, although the cheapest across the state, will be reduced in a short time, railroad lengthened, and speed increased.

Leave Cincinnati in the morning, arrive at Columbus at night.

Leave Columbus in the morning, arrive at Sandusky same day.

Leave Sandusky, by Boat, in the morning, arrive at Buffalo next morning in time for the Cars north and east for Niagara Falls, Canada, Saratoga Springs, Troy, Albany, Boston, New York, Washington, or Philadelphia.

Passengers should not omit to pay their fare through from Cincinnati to Sandusky, or from Columbus to Sandusky via Mansfield; as this route is the only one that secures 56 miles [this road is run over in 2h. 50m.,] most railroad which is new, and is the shortest, cheapest and most expeditious across the state.

Fares on the New York railroads are about to be reduced. B. HIGGINS, *Sup't, etc.*

*Sandusky, Ohio.* *M. & S. C. R. R. Co.*

**SUMMER ARRANGEMENT.—NEW YORK AND ERIE RAILROAD LINE**, from April 1st until further notice, will run daily (Sundays excepted) between the city of New York and Middletown, Goshen, and intermediate places, as follows:

FOR PASSENGERS—
Leave New York at 7 A.M. and 4 P.M.
" Middletown at 6½ A.M. and 5½ P.M.

FARE REDUCED to $1 25 to Middletown—way in proportion. Breakfast, supper and berths can be had on the steamboat.

FOR FREIGHT—
Leave New York at 5 P.M.
" Middletown at 12 M.

The names of the consignee and of the station where to be left, must be distinctly marked upon each article shipped. Freight not received after 5 P. M. in New York.

Apply to J. F. Clarkson, agent, at office corner of Duane and West sts. H. C. SEYMOUR, Sup't.

March 25th, 1846.

Stages run daily from Middletown, on the arrival of the afternoon train, to Milford, Carbondale, Honesdale, Montrose, Towanda, Owego, and West; also to Monticello, Windsor, Binghamton, Ithaca, etc., etc. Agent on board. 13 tf

**NORWICH AND WORCESTER RAILRoad.** Summer Arrangement, commencing Monday, April 6, 1846.

Accommodation Trains, daily, except Sunday. Leave Norwich, at 6 a.m., and 4½ p.m. Leave Worcester, at 10 a.m., and 4½ p.m.

☞ The morning Accommodation Trains from Norwich, and from Worcester, connect with the trains of the Boston, and Worcester and Western railroads each way.

The Evening Accommodation Train from Worcester connects with the 1½ p.m. train from Boston.

New York Train via Long Island Railroad:

Leave Allyn's Point for Boston, about 1 p.m., daily, except Sunday.

Leave Worcester for New York, about 10 a.m., stopping at Webster, Danielsonville, and Norwich.

New York Train via Steamboat—Leave Norwich for Boston, every morning, except Monday, on the arrival of the stamboat from New York, stopping at Norwich and Danielsonville.

Leave Worcester for New York, upon the arrival of the train from Boston, at about 4½ p.m., daily, except Sunday, stopping at Webster, Danielsonville and Norwich.

Freight Trains daily each way, except Sunday.—Special contracts will be made for cargoes, or large quanties of freight, on application to the superintendent.

☞ *Fares are Less when paid for Tickets than when paid in the Cars.* ☜

32 1y J. W. STOWELL, Sup't.

**TROY RAILROADS.—IMPORTANT NOTICE.**—Troy and Greenbush Railroad, forming a continuous track from Boston to Buffalo and Saratoga Springs.

This road is new, and laid with the heaviest iron H rail. Trains will always be run on this road connecting at Greenbush each way with the trains to and from *Boston* and intermediate places, leaving Greenbush daily at 1½ p.m. and 6 p.m., or on arrival of the trains from Boston; leave Troy at 7½ a. m. and 4½ p.m., or to connect with trains to *Boston*

Trains also run hourly on this road between Troy and Albany. Running time between Greenbush and Troy, 15 minutes.

*TROY AND SCHENECTADY RAILROAD.*

This road is laid its entire length with the heaviest H rail- which is not the fact with the road from Albany. Trains will always be run on this road connecting each way, to and from Buffalo and intermediate places. Leave Troy for Buffalo at 7½ a.m. and 1 p.m. and 6½ p.m., or to connect with the trains for the west; leave Schenectady at 2½ a.m., 8½ a.m., 1 p.m. and 3½ p.m., or on arrival of the trains from Buffalo and intermediate places.

*TROY AND SARATOGA RAILROAD.*

THE ONLY DIRECT ROUTE.

No change of passenger, baggage or other cars on this route. Cars leave Troy for Ballston, Saratoga Springs, Lake George and White Hall at 7½ a.m., (arriving one hour in advance of the train from Albany,) and at 3½ p.m. Returning, leave Saratoga at 9 a.m. and 3½ p.m., (reaching Troy in time for the evening boats to New York.) Cars also leave Troy for the Burrough at 3½ p.m. and 7 p.m., connecting with packet boats for the north. This takes passengers from New York and Boston to Montreal in 44 hours.

N.B. Travellers will find the routes through Troy most convenient and economical, and as expeditious as any other. The steamboats to and from New York land within a few steps of the railroad office, and passengers are taken up and landed by the different railroad lines at the doors of principal hotels, thus saving all necessity for, and annoyance from, hack drivers, cabmen, runners, etc.

*Aug.* 3, 1846. 1y 32

**BALTIMORE AND OHIO RAILROAD. MAIN STEM.** The Train carrying the Great Western Mail leaves Baltimore every morning at 7½ and Cumberland at 8 o'clock, passing Ellicott's Mills, Frederick, Harpers Ferry, Martinsburgh and Hancock, connecting daily each way with—the Washington Trains at the Relay House seven miles from Baltimore, with the Winchester Trains at Harpers Ferry—with the various railroad and steamboat lines between Baltimore and Philadelphia and with the lines of Post Coaches between Cumberland and Wheeling and the fine Steamboats on the Monongahela Slack Water between Brownsville and Pittsburgh. Time of arrival at both Cumberland and Baltimore 5½ P. M. Fare between those points $7, and 4 cents per mile for less distances. Fare through to Wheeling $11 and time about 36 hours, to Pittsburgh $10, and time about 32 hours. Through tickets from Philadelphia to Wheeling $13, to Pittsburgh $12. Extra train daily except Sundays from Baltimore to Frederick at 4 P. M., and from Frederick to Baltimore at 8 A. M.

WASHINGTON BRANCH.

Daily trains at 9 A. M. and 5 P. M. and 12 at night from Baltimore and at 6 A. M. and 5½ P. M from Washington, connecting daily with the lines North, South and West, at Baltimore, Washington and the Relay house. Fare $1 60 through between Baltimore and Washington, in either direction, 4 cents per mile for intermediate distances. s13y1

**THE SUBSCRIBER IS PREPARED TO** execute at the Trenton Iron Works, orders for Railroad Iron of any required pattern, and warranted equal in every respect in point of quality to the best American or imported Rails. Also on hand and made to order, Bar Iron, Braziers' and Wire Rods, etc., etc.

PETER COOPER 17 Burling Slip.

1y10 New York.

**NEW RAILROAD ROUTE FROM BUFFALO to Cincinnati.**

Passengers destined for Columbus and Cincinnati, Louisville, Ky., St. Louis, Mo., Memphis, Tenn., Vicksburg, Natches, New Orleans, and all intermediate ports, will find a new, and the most expeditious and comfortable Route, by taking Steamboats at Buffalo, landing at Sandusky City, Ohio, distance ..... 230 miles.

From thence by Cars, over the Mansfield Railroad which is new and just opened [laid with heavy Iron,] to Mansfield, distance ..... 56 "

Thence by Stage via Columbus to Xenia over gravel and Macadamized Road, (the best in the state,) in new coaches, distance ..... 88 "

Thence, over the Little Miami Railroad, from Xenia to Cincinnati, distance .... 65 "

TIME.

From Buffalo to Sandusky ..... 24 hours.
Leave Sandusky 5 a.m. to Columbus .... 14 "
From Columbus to Cincinnati ..... 15 "

Or say 30 hours from Sandusky to Cincinnati over this route, including delays.

FARE.

From Buffalo to Sandusky, Cabin ..... $6 00
" " " " Steerage ..... 3 00
" Sandusky to Columbus ..... 4 50
" " *through* to Cincinnati ..... 8 00

Passengers should not omit to pay their fare *through* from Sandusky City to Cincinnati and take receipts availing themselves of the benefit of a contract existing between the said Railroad and Stage Co's, securing 121 miles travel by good Railroad and 88 miles by Stage, in crossing from Lake Erie to the Ohio river, in the space of 30 hours.

Passengers destined for St. Louis, or any point below on the Mississippi, will save by taking this route, from 4 to 6 days time and travel, and nearly half the expense, over the Chicago and Peoria route to the above places.

Fare by this route, although the cheapest, will in a short time be reduced, Railroad lengthened, and speed increased.

B. HIGGINS, *Sup't, etc.*
*M. & S. C. R. R. Co.*
*Sandusky City, Ohio.*

**NEW YORK & HARLEM RAILROAD CO.**—Winter Arrangement.

On and after Monday, November 23, 1846, the cars will run as follows:

Leave 27th street for 42d street, Deaf and Dumb Institute, Yorkville, Harlem Morrianna, and Williams' Bridge, at 7 o'clock a.m. From City Hall for above named places, 2 p.m. [freight train,] 2 30 p.m. 5 p.m. to Morrisiania only.

Leave City Hall for Harlem, Morrisiania, Fordham and Williams' Bridge, at 7 45 a.m., and 10 45 a.m.; 1 15 p.m., 2 p.m. [freight train], 2 30 p.m. and 3 45 p.m.

Leave City Hall for Hunt's Bridge, Bronx, Tuckahoe, Hart's Corners White Plains, Davis' Brook, Unionville and Pleasantville, [Pleasantville 4 miles from Sing Sing,] 7 45 and 10 45 a.m.; 1 15 p.m., 2 p.m. [freight train], and 3 45 p.m.

RETURNING.

Leave Pleasantville, at 8, 10, [freight train], and 11, a.m.; 1 30, and 4, p.m.

Leave White Plains, at 8 12, 10 30, [freight train] and 11 20 a.m.; 1 50, and 4 20, p.m.

Leave Tuckahoe, 8 35, 10 55, [freight train,] and 11 35, a.m.; 2 05, and 4 35, p.m.

Leave Williams' Bridge at 7 45, 8 50 and 11 50 a.m.; 2 10, 4, and 4 50 p.m.

Leave Morrisiania 8 and 9 05 a.m.; 12 05, 2 35, 4 20, 5 05 and 6 p.m.

Leave Yorkville, at 8 12 a.m.; 4 35 and 6 15 p.m.

SUNDAY ARRANGEMENTS.

Leave City Hall for Pleasantville and intermediate places, at 7 45 a.m.; 1 15 and 3 p.m.

Leave Pleasantville for City Hall, at 8 a.m.; 11, and 3 15 p.m.

Leave City Hall for Williams' Bridge and intermediate places, 10 45 a.m.; 2 30 p.m.

Leave Williams' Bridge for City Hall, at 8 50 and 11 50 a.m.; 1, 3 45 and 4 05 p.m. 1y49

**BALTIMORE AND SUSQUEHANNA Railroad.**—Reduction of Fare. Morning and Afternoon Trains between Baltimore and York.—The Passenger trains run daily, except Sunday, as follows:

Leaves Baltimore at ..... 9 a.m. and 3½ p.m.
Arrives at ..... 9 a.m. and 6½ p.m.
Leaves York at ..... 5 a.m. and 3 p.m.
Arrives at ..... 12½ p.m. and 8 p.m.
Leaves York for Columbia at .. 1½ p.m. and 8 a.m.
Leaves Columbia for York at .. 8 a.m. and 2 p.m.

FARE.

Fare to York ..... $1 50
" Wrightsville ..... 2 00
" Columbia ..... 2 12½
Way points in proportion.

*PITTSBURG, GETTYSBURG AND HARRISBURG.*

Through tickets to Pittsburg via stage to Harrisburg ..... $9
Or via Lancaster by railroad ..... 10
Through tickets to Harrisburg or Gettysburg .. 3
In connection with the afternoon train at 3½ o'clock, a horse car is run to Green Spring and Owing's Mill, arriving at the Mills at ..... 5½ p.m.
Returning, leaves Owing's Mills at ..... 7 a.m.

D. C. H. BORDLEY, *Sup't.*
3i 1y Ticket Office, 63 North st.

**LEXINGTON AND OHIO RAILROAD.** Trains leave Lexington for Frankfort daily, at 5 o'clock a.m., and 2 p.m. Trains leave Frankfort for Lexington daily, at 8 o'clock a.m. and 2 p.m. Distance, 28 miles. Fare $1·25.

On Sunday but one train, 5 o'clock a.m. from Lexington, and 2 o'clock p.m. from Frankfort.

The winter arrangement (after 15th September to 15th March) is 6 o'clock a.m. from Lexington, and ma. 9. from Frankfort, other hours as above.

351y

**SOUTH CAROLINA RAILROAD.**—A Passenger Train runs daily from Charleston, on the arrival of the boats from Wilmington, N. C., in connection with trains on the Georgia, and Western and Atlantic Railroads—and by stage lines and steamers connects with the Montgomery and West Point, and the Tuscumbia Railroad in N. Alabama.

Fare through from Charleston to Montgomery daily ..... $26 50
Fare through from Charleston to Huntsville, Decatur and Tuscumbia ..... 22 00

The South Carolina Railroad Co. engage to receive merchandize consigned to their order, and to forward the same to any point on their road; and to the different stations on the Georgia and Western and Atlantic railroad; and to Montgomery, Ala., by the West Point and Montgomery Railroad.

1y25 JOHN KING, Jr, *Agent.*

**CENTRAL RAILROAD—FROM SAVANnah to Macon.** Distance 190 miles.

This Road is open for the transportation of Passengers and Freight. Rates of Passage, $8 00. Freight—

On weight goods generally... 50 cts. per hundred.
On measurement goods ..... 13 cts. per cubic ft.
On brls. wet (except molasses and oil) ..... $1 50 per barrel.
On brls. dry (except lime) ... 80 cts. per barrel.
On iron in pigs or bars, castings for mills, and unboxed machinery ..... 40 cts. per hundred.
On hhds. and pipes of liquor, not over 120 gallons ..... $5 00 per hhd.
On molasses and oil ..... $6 00 per hhd.

Goods addressed to F. WINTER, Agent, forwarded free of commission. THOMAS PURSE,

y40 Gen'l. Sup't. Transportation.

**MANUFACTURE OF PATENT WIRE** Rope and Cables for Inclined Planes, Standing Ship Rigging, Mines, Cranes, Tillers etc., by

JOHN A. ROEBLING, *Civil Engineer,* Pittsburgh, Pa.

These Ropes are in successful operation on the planes of the Portage Railroad in Pennsylvania, on the Public Slips, on Ferries and in Mines. The first rope put upon Plane No. 3, Portage Railrord, has now run 4 seasons, and is still in good condition. 2v19 1y

**CENTRAL AND MACON AND WESTERN** Railroads, Ga.—These Roads with the Western and Atlantic Railroad of the State of Georgia, form a continuous line from Savannah to Oothcaloga, Ga., of 371 miles, viz:

| | Miles. |
|---|---|
| Savannah to Macon—Central Railroad | 190 |
| Macon to Atlanta—Macon and Western | 101 |
| Atlanta to Oothcaloga—Western and Atlaniic | 80 |

Goods will be carried from Savannah to Atlanta and Oothcaloga, at the following rates, viz:

| | To Atlanta. | To Oothcaloga. |
|---|---|---|
| On Weight Goods—Sugar, Coffee, Liquor, Bagging, Rope, Butter, Cheese, Tobacco, Leather, Hides, Cotton Yarns, Copper, Tin, Bar & Sheet Iron, Hollow Ware & Castings | $0 50 | $0 75 |
| Flour, Rice, Bacon in Casks or boxes, Pork, Beef, Fish, Lard, Tallow, Beeswax, Mill Gearing, Pig Iron and Grind Stones | 0 50 | 0 62½ |
| On Measurement Goods—Boxes of Hats, Bonnets and Furniture, per cubic foot | 0 20 | 0 26 |
| Boxes and Bales of Dry Goods, Saddlery, Glass, Paints, Drugs and Confectionary, per cubic foot | 0 20 | pr. 100 lbs. 35 |
| Crockery, per cubic foot | 0 15 | " " 35 |
| Molasses and Oil, per hhd., (smaller casks in proportion). | 9 00 | 12 50 |
| Ploughs, (large,) Cultivators, Corn Shellers, and Straw Cutters, each | 1 25 | 1 50 |
| Ploughs, (small,) and Wheelbarrows | 0 80 | 1 05 |
| Salt, per Liverpool Sack | 0 70 | 0 95 |

Passage—Savannah to Atlanta, $10; Children, under 12 years of age, half price, Savannah to Macon, $7.

☞ Goods consigned to the subscriber will be forwarded free of Commissions.

☞ Freight may be paid at Savannah, Atlanta or Oothcaloga.

F. WINTER, *Forwarding Agent, C. R. R.*
Savannah, Aug. 15th, 1846. 1y34

**GREAT SOUTHERN MAIL LINE!** VIA Washington city, Richmond, Petersburg, Weldon and Charleston, S. C., direct to New Orleans. The only Line which carries the Great Southern Mail, and Twenty-four Hours in advance of Bay Line, leaving Baltimore same day.

Passengers leaving New York at 4½ P.M., Philadelphia at 10 P.M., and Baltimore at 6½ A.M., proceed without delay at any point, by this line, reaching Richmond in *eleven*, Petersburg in *thirteen and a half hours*, and Charleston, S. C., in *two days* from Baltimore.

Fare from Baltimore to Charleston.....$21 00
" " " Richmond..... 6 60

For Tickets, or further information, apply at the *Southern Ticket Office*, adjoining the *Washington Railroad Office*, Pratt street, Baltimore, to
1y14 STOCTON & FALLS, Agents.

**RAILROAD SCALES.—THE ATTENTION** of Railroad Companies is particularly requested to Ellicotts' Scales, made for weighing loaded cars in trains, or singly, they have been the inventors, and the first to make platform scales in the United States; supposing that an experience of **20** years has given a knowledge and superior advantage in the business.

The levers of our scales are made of wrought iron, all the bearers and fulcrums are made of the best cast steel, laid on blocks of granite, extending across the pit, the upper part of the scale only being made of wood. E. Ellicott has made the largest Railroad Scale in the world, its extreme length was one hundred and twenty feet, capable of weighing ten loaded cars at a single draft. It was put on the Mine Hill and Schuylkill Haven Railroad.

We are prepared to make scales of any size to weigh from five pounds to two hundred tons.

ELLICOTT & ABBOTT.
Factory, 9th street, near Coates, cor. Melon st.
Office, No. 3 North 5th street,
1y25 Philadelphia, Pa.

**GEORGIA RAILROAD. FROM AUGUSTA** to ATLANTA—171 MILES. AND WESTERN AND ATLANTIC RAILROAD FROM ATLANTA TO OOTHCALOGA, 80 MILES.

This Road in connection with the South Carolina Railroad and Western and Atlantic Railroad now forms a continuous line, 388 miles in length, from Charleston to Oothcaloga on the Oostenaula River, in Cass Co., Georgia.

| RATES OF FREIGHT. | | Between Augusta and Oothcaloga. 250 miles. | Between Charleston and Oothcaloga. 386 miles. |
|---|---|---|---|
| 1st class. | Boxes of Hats, Bonnets, and Furnature, per cubic foot | $0 16 | $0 25 |
| 2d class. | Boxes and Bales of Dry Goods, Sadlery, Glass, Paints, Drugs and Confectionary, per 100 lbs. | 0 90 | 1 40 |
| 3d class. | Sugar, Coffee, Liquor, Bagging, Rope, Cotton Yarns, Tobacco, Leather, Hides, Copper, Tin, Bar and Sheet Iron, Hollow Ware, Castings, Crockery, etc. | 0 55 | 0 75 |
| 4th class. | Flour, Rice, Bacon, Pork, Beef, Fish, Lard, Tallow, Beeswax, Feathers, Ginseng, Mill Gearing, Pig Iron, and Grindstones, etc | 0 37½ | 0 62½ |
| | Cotton, per 100 lbs | 0 45 | 0 65 |
| | Molasses, per hogshead. | 8 50 | 13 50 |
| | " " barrel | 2 00 | 3 25 |
| | Salt per bushel | 0 17 | |
| | Salt per Liverpool sack | | 95 |
| | Ploughs, Corn Shellers, Cultivators, Straw Cutters, Wheelbarrows | 0 75 | 1 37 |

German or other emigrants, in lots of 20 or more, will be carried over the above roads at 2 cents per mile.

Goods consigned to S. C. Railroad Co. will be forwarded free of commissions. Freight may be paid at Augusta, Atlanta, or Oothcaloga.

J. EDGAR THOMSON,
*Ch. Eng. and Gen. Agent.*
*Augusta, Sept. 2d,* 1846. *44 1y

**THE WESTERN AND ATLANTIC** Railroad.—This Road is now in operation to Oothcaloga, a distance of 80 miles, and connects daily (Sundays excepted) with the Georgia Railroad.

From Kingston, on this road, there is a tri-weekly line of stages, which leave on the arrival of the cars on Tuesday, Thursday and Saturday, for Warrenton, Huntsville, Decatur and Tuscumbia, Alabama, and Memphis, Tennessee.

On the same days, the stages leave Oothcaloga for Chattanooga, Jasper, Murfreesborough, Knoxville and Nashville, Tennessee.

This is the most expeditious route from the east to any of these places.

CHAS. F. M. GARNETT,
*Chief Engineer.*
Atlanta, Georgia, April 16th, 1846. 1y1

**TO RAILROAD COMPANIES AND MANU**facturers of railroad Machinery. The subscribers have for sale Am. and English bar iron, of all sizes; English blister, cast, shear and spring steel; Juniata rods; car axles, made of double refined iron; sheet and boiler iron, cut to pattern; tiers for locomotive engines, and other railroad carriage wheels, made from common and double refined B. O. iron; the latter a very superior article. The tires are made by Messrs. Baldwin & Whitney, locomotive engine manufacturers of this city. Orders addressed to them, or to us, will be promptly executed.

When the exact diameter of the wheel is stated in the order, a fit to those wheels is guaranteed, saving to the purchaser the expense of turning them out inside. THOMAS & EDMUND GEORGE,
a45 E. cor. 12th and Market sts., Philad., Pa.

**LITTLE MIAMI RAILROAD.—OPEN TO SPRINGFIELD**—Distance 84 miles—connecting at Xinia and Springfield with Messrs. Neil, Moore, & Co's. daily daylight lines of stages going east and north, to Columbus, Zanesville, Wheeling, Cleveland, and Sandusky City, via Urbana, Bellefontaine, Kenton, and the Mad river and lake Erie railroad, or Columdus, Delaware, and the Mansfield and Sundusky City railroad—forming, by these connections, the cheapest and most expeditious route to Buffalo, Niagara Falls, Rochester, Albany, New York, and Boston.

On and after Thursday, August 13, 1846, until further notice, a Passenger train will run as fllows:

Leave Cincinnati daily at 9 A. M., for Milford, Foster's Crossing, Deerfield, Morrow, Fort Ancient, Freeport, Waynesville, Spring Valley, Xenia, Old Town, Yellow Springs, and Springfield.

Returning, will leave Springfield at 4 hours 35 minutes A. M. A line of Hacks runs in connection with the Cars, between Deerfield and Lebanon.

| | | | |
|---|---|---|---|
| Fare—From Cincinnati to Lebanon | $1 00 |
| " | " | " Xenia | 1 50 |
| " | " | " Springfield | 2 00 |
| " | " | " Columbus | 4 00 |
| " | " | " Sundusky city | 8 00 |

The Passenger trains runs in connection with Strader & Gorman's line of Mail Packets to Louisville.

Tickets can be procured at the Broadway Hotel, Dennison House, or at the Depot of the Company, on East Front street.

Further information and through tickets for the Stage lines, may be procured at P. Campbell, Agent on Front street, near Broadway.

The company will not be responsible for baggage beyond 50 dollars in value, unless the same is returned to the conductor or agent, and freight paid at of a passage for every $500 in value over that amount.

The 1½ P. M. train from Cincinnati, and the 2 40 P. M. train from Xenia, will be discontinued on and after Monday, the 10th instant.

A freight train will run daily.
47tf W. H. CLEMENT, *Sup't.*

**LAWRENCE'S ROSENDALE HYDRAU**lic Cement. This cement is warranted equal to any manufactured in this country, and has been pronounced superior to Francis' "Roman." Its value for Aqueducts, Locks, Bridges, Flooms and all Masonry exposed to dampness, is well known, as it sets immediately under water, and increases in solidity for years.

For sale in lots to suit purchasers, in tight papered barrels, by JOHN W. LAWRENCE,
142 Front street, New York.

☞ Orders for the above will be received and promptly attended to at this office. 32 1y

**CLEVELAND, COLUMBUS AND CIN**cinnati Railroad. In pursuance of a resolution adopted by the Board of Directors, on the 21st October, notice is hereby given, that proposals will be received up to the 1st day of December next, for the Grading, Timbering, Bridges and Culverts on forty miles of the road, commencing at Cleveland. Profiles, Specifications, Terms of Payment, and all other information pertaining to the matter, to be furnished on application at the office of the Company, Merwin Block, Cleveland.

JOHN W. ALLEN, President.
A. G. LAWRENCE, Secretary.
CYRUS WILLIAMS, Engineer.
Cleveland, October 23, 1846. 45•1m

**BACK VOLUMES OF THE RAILROAD JOURNAL** for sale at the office, No. 23 Chambers street

**A. & G. RALSTON & CO., NO. 4** South Front St., Philadelphia, Pa.

Have now on hand, for sale, Railroad Iron, viz:
180 tons 2½ x ½ inch Flat Punched Rails, 20 ft. long.
25 " 2½ x ½ " Flange Iron Rails.
75 " 1 x ½ " Flat Punched Bars for Drafts in Mines. A full assortment of Railroad Spikes, Boat and Ship Spikes. They are prepared to execute orders for every description of Railroad Iron and Fixtures. 1tf

GEORGE VAIL & CO., SPEEDWELL IRON Works, Morristown, Morris Co., N. J.—Manufacturers of Railroad Machinery; Wrought Iron Tires, made from the best iron, either hammered or rolled, from 1¼ in. to 2½ in thick.—bored and turned outside if required. Railroad Companies wishing to order, will please give the exact inside diameter, or circumference, to which they wish the Tires made, and they may rely upon being served according to order, and also punctually, as a large quantity of the straight bar is kept constantly on hand.—Crank Axles, made from the best refined iron; Straight Axles, for Outside Connection Engines; Wro't. Iron Engine and Truck Frames; Railroad Jack Screws; Railroad Pumping and Sawing Machines, to be driven by the Locomotive; Stationary Steam Engines; Wro't. Iron work for Steamboats, and Shafting of any size; Grist Mill, Saw Mill and Paper Mill Machinery; Mill Gearing and Mill Wright work of all kinds; Steam Saw Mills of simple and economical construction, and very effective Iron and Brass Castings of all descriptions. 1y1

VALUABLE PROPERTY ON THE MILL Dam For Sale. A lot of land on Gravelly Point, so called, on the Mill Dam, in Roxbury, fronting on and east of Parker street, containing 68,497 square feet, with the following buildings thereon standing.

Main brick building, 120 feet long, by 46 ft wide, two stories high. A machine shop, 47x43 feet, with large engine, face, screw, and other lathes, suitable to do any kind of work.

Pattern shop, 35x32 fe. with lathes, work benches,

Work shop, 86x35 feet, on the same floor with the pattern shop.

Forge shop, 118 feet long by 44 feet wide on the ground floor, with two large water wheels, each 16 feet long, 9 ft diameter, with all the gearing, shafts, drums, pulleys, &c., large and small trip hammers, furnaces, forges, rolling mill, with large balance wheel and a large blowing apparatus for the foundry.

Foundry, at end of main brick building, 60x45½ feet two stories high, with a shed part 45½x20 feet, containing a large air furnace, cupola, crane and corn oven.

Store house—a range of buildings for storage, etc., 200 feet long by 20 wide.

Locomotive shop, adjoining main building, fronting on Parker street, 54x25 feet.

Also—A lot of land on the canal, west side o Parker st., containing 6000 feet, with the following buildings thereon standing:

Boiler house 50 feet long by 30 feet wide, two stories.

Blacksmith shop, 49 feet long by 20 feet wide.

For terms, apply to HENRY ANDREWS, 48 State st., or to CURTIS, LEAVENS & CO., 106 State st., Boston, or to A. & G. RALSTON & Co., Philadelphia. ja45

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**WELDED WROUGHT IRON TUBES**

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**MORRIS, TASKER & MORRIS.**

Warehouse S. E. Corner of Third & Walnut Streets,

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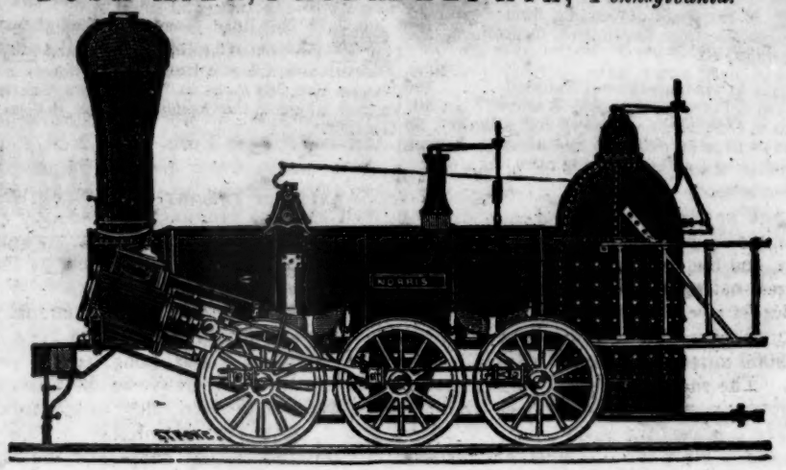
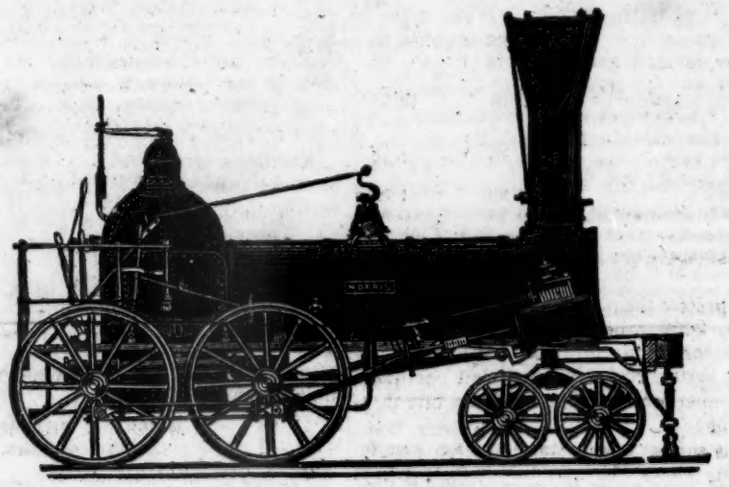
September 18, 1846. 10:39

# NORRIS' LOCOMOTIVE WORKS.

*BUSH HILL, PHILADELPHIA, Pennsylvania.*





MANUFACTURE their Patent 6 Wheel Combined and 8 Wheel Locomotives of the following descriptions, viz:

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Class | 1, | 15 | inches | Diameter of | Cylinder, | × 20 | inches | Stroke. |
| " | 2, | 14 | " | " | " | × 24 | " | " |
| " | 3, | 14½ | " | " | " | × 20 | " | " |
| " | 4, | 12½ | " | " | " | × 20 | " | " |
| " | 5, | 11½ | " | " | " | × 20 | " | " |
| " | 6, | 10½ | " | " | " | × 18 | " | " |

With Wheels of any dimensions, with their Patent Arrangement for Variable Expansion.

Castings of all kinds made to order: and they call attention to their Chilled Wheels, for the Trucks of Locomotives, Tenders and Cars.

NORRIS, BROTHERS.

THE NEWCASTLE MANUFACTURING Company continue to furnish at the Works, situated in the town of Newcastle, Del., Locomotive and other steam engines, Jack screws, Wrought iron work and Brass and Iron castings, of all kinds connected with Steamboats, Railroads, etc.; Mill Gearing of every description; Cast wheels (chilled) of any pattern and size, with Axles fitted, also with wrought tires, Springs, Boxes and bolts for Cars; Driving and other wheels for Locomotives.

The works being on an extensive scale, all orders will be executed with promptness and despatch. Communications addressed to Mr. William H. Dobbs, Superintendent, will meet with immediate attention. ANDREW C. GRAY,

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KEARNEY FIRE BRICK. F. W. BRINLEY, Manufacturer, Perth Amboy, N. J. Guaranteed equal to any, either domestic or foreign. Any shape or size made to order. Terms, 4 mos. from delivery of brick on board. Refer to

James P. Allaire, Peter Cooper, Murdock, Leavirt & Co. } New York.

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"Railways at Home and Abroad."

## THE EDINBURGH REVIEW, AND ITS ARTICLE ON RAILWAYS. (ART. VII.)

(Continued from page 791.)

It may, perhaps, be urged, that the operations of past years have not been productive of any such effects. It is necessary, however, to remember that the seventy-five millions of capital, which have already been invested in railways, have been spread over a period of more than fifteen years—giving an average annual absorption of only five millions, while we are now to supply forty millions, and that generally that period was one of great national prosperity.

But let us assume the work to be done.—Let us suppose the capital to be sunk, and the 9000 miles of railway to be in full operation. The shareholders will expect at least as good average profits as those who have already made a like investment. We have seen that a gross revenue of £3000 per mile, on the existing lines, only pays an average profit of about 5 per cent. What must be the gross revenue of the system of lines, now contemplated, to give the same profits?

In order that 9000 miles of railway should produce £3000 per mile, it is necessary that the public should expend on that species of inland transport twenty seven millions a year! Assuming that this expenditure is distributed between passengers and merchandize, as it is at present, seventeen millions will be paid for passengers and ten millions for merchandize.

At present the number of passengers booked on 2000 miles of railway annually is nearly thirty-four millions. When the enlarged system comes into complete operation, the number must be a hundred and fifty-three millions!

This subject opens many curious and interesting views; but our limits warn us that we must at present dismiss it.

When the results of the operations in England became known in America, the advantages which such means of intercommunication must produce in that country became immediately apparent; and in various parts of the union, the enterprizing spirit of the population was directed to the construction of railways. The progress was rapid; and a few years witnessed an extensive system of steam communication by land throughout the most populous and active of the Atlantic states.

The total length of railway now actually constructed, and in operation in the United States, amounts to about 4500 miles; of which 500 miles consist of short lines, connected with coal works and private establishments; leaving about 4000 miles of swift steam conveyance, by railway, for passengers and merchandize. Besides this, there are about 10,000 miles projected, the construction of most of which has been suspended, since the financial and momentary revulsions which took place some years since. Of the railways completed and in operation, the chief part are in the Atlantic states. A few short lines, however, have been constructed in the south and west. Thus there are seven railways in Alabama, four in Florida, ten in Louisiana, and five in Mississippi.

Pennsylvania, New York, and the states of New England, are the great theatres of American railway enterprize. The state of Pennsylvania is intersected by nearly a thousand miles of railway; and an equal length is in operation, or process of construction, in the state of New York. The New England states are in every direction intersected by railways. Boston is connected towards the west with the Hudson, at Albany, by a continuous line. It is connected towards the south, with Long Island Sound, by lines to Providence and Stonington, and to Worcester and New London. The communication is carried on from these points to New York both by railway over Long Island and by steamboats on the sound and the East river.

From the Hudson, there is an unbroken line of railway communication to the great northern lakes. By these and the Illinois river, the communication is continued by steamboats nearly to the banks of the Upper Mississippi; where it is continued for some thousand miles westward by the Missouri towards the Rocky Mountains; and southward by the Lower Mississippi to New Orleans and the Gulf of Mexico.

Another artery of railway communication proceeds from New York southward—traversing the states of New Jersey, Pennsylvania, Delaware, Maryland, Virginia, North and South Carolina—and turning westward through Georgia, terminates near the banks of the Alabama river; there the line is continued by steamboats to the north of that river: and thence to lake Pontchartrain, where it meets a line of railway which terminates finally at New Orleans. The entire territory of the union is thus enclosed in an uninterrupted circle of steam communication.

Nor are great transverse arteries wanting to complete the interfusion of the commerce of the country. From the artery running north and south just mentioned, there issues a latteral branch at Baltimore, proceeding westward towards the Allegheny range. At present this is continued only as far as Cumberland—at the foot of the ridge, which is from that point crossed by an excellent Macadamized road, on which stage coaches work at a speed equal to the best English coach travelling. It is, however, intended to supersede this road, by a continuation of the railway to Wheeling and Pittsburg on the Ohio. Thence the communication is carried on by steamboats on that river, to the point where its waters are received by the Mississippi.

We have here traced the great main arteries of the internal commerce of the United States, but these only. From these at every point diverge innumerable ramifications, either by tributary navigable rivers, by branch railways, or by common roads.

There are also isolated instances of the irrepressible spirit of enterprize, which so strongly characterizes this people, to be fonnd in railways constructed and in operation, where the highest refinements of locomotion would be the last thing the wanderer of the wiles would expect to meet. In the backwoods of Mississippi, traversing native forests where, till within a few years, human foot never trod, through solitudes the silence of which was never disturbed even by the red man, we are now transported on railways. The impression produced on the traveller as he is whirled through these wilds, and sees the frightened deer start from its lair at the snorting of the ponderous machine which moves him, and reflects on all that man has accomplished in these regions within half a century, cannot be described.*

When the expenditure involved in the construction and operation of British railways is considered, the financier, the statistician, and the economist, will naturally ask how, with a population so sparse and a territory so vast, such a system of communication could be established and sustained? If the great mass of the passenger lines in England have cost at the rate of thirty-five thousand pounds per mile, and the profits gained even on the most successful among them do not exceed 10 per cent., while the average profits of all do not amount to more than half that rate—how, it may be asked, can this stupendous system of American railways, with a traffic comparatively so insignificant, among a people where profits on capital are high and the rate of interest from 6 to 10 per cent., be made to answer?

This difficulty is explained, partly by the general nature of the country, partly by the mode of constructing the railways, and partly by the manner of working them.

With certain exceptions, few in number, the tracts of country over which these railways pass form nearly a dead level. Of earth-work, therefore, there is but little. Occasionally low embankments and shallow cuttings are all the difficulties the engineer has to surmount. Of works of art, such as viaducts and tunnels, there are almost none. Where the lines have to be conducted over streams or rivers, bridges are constructed, in a rude but substantial and secure manner, of timber, which is supplied from forests at the road side, subject to no other cost save that of hewing it. The station houses, booking offices, and other buildings, are likewise slightly and cheaply constructed of timber.

Where the lines of road intersect considerable rivers, such as the Hudson, the Delaware or the Susquehanna, the latter are crossed by steamboats, the railway being resumed on the opposite bank. This operation is effected without objectionable inconvenience or delay, and is often so regulated as to correspond with the meals of the passengers, which are in that case supplied in the boat while crossing. The passengers' luggage, and such light goods as are transported by passenger trains, are carried in vans, supported on cast iron rollers, which are placed on the railway trucks. On the arrival at a ferry, these vans are rolled without delay along a platform level with the truck, to the upper deck

* A railway is in operation between Vicksburg, on the eastern bank of the Mississippi, and the town of Jackson, in the centre of the state, which throughout its entire length traverses the native forests, where the engineers who made it were probably the first of the human race that had ever set their foot.

of the steamboat, which is at the same level, or nearly so; and on arriving at the opposite bank they are rolled by a like expedient upon the trucks of the train which waits.

But, besides the facilities afforded for the construction of railways by the flat and level character of the country, and the boundless supply of timber at a trifling cost, a further and much larger economy is effected, as compared with European lines, by the method of construction.

Formed to supply a very limited amount of traffic in proportion to their length, the American railways are, generally, single lines. Sidings are of course provided at convenient stations, in which one train waits until the train in the contrary direction has passed. Collision is impossible, for the first train which arrives must, by the rules of the road, move into the siding. This arrangement would be attended with inconvenience on lines where a frequent passage of the trains takes place; but on the principal American lines, the quick trains seldom pass in each direction more than twice a day, and the time and place of their meeting is perfectly regulated. In fact, no inconvenience is felt or complained of from this cause in the practical working of the lines. In cases where the traffic is so considerable as to require them, double lines have been constructed.

In the structure of the roads themselves, principles have been adopted which have been attended with great economy compared with European lines—the application of which was rendered admissible by the lightness of the traffic and the moderate speed contemplated. In laying out these lines the engineers did not, as in England, impose on themselves the difficult and expensive condition of excluding all curves but those of a large radius. On the other hand, curves having a radius of one thousand feet are usual, and occasionally those of five hundred feet, and even less, are allowed. Nor are the gradients restricted to the same low limits as with us. Acclivities rising at the rate of one foot in a hundred and thirty, are considered a moderate ascent; and there are not less than fifty lines, in which the gradients are laid down at a rate varying from one in a hundred to one in seventy-five. Nevertheless, these rises are worked without difficulty by locomotives without the expedient either of assistant or stationary engines. The consequences of this have been to diminish the cost of earth work, bridges and viaducts; even in parts of the country where the character of the surface is least favorable. But the chief source of economy in the construction of these lines has arisen from the structure of the road surface. In many cases where there is a light traffic, the rails consist of flat bars of iron two and a half inches broad, and from five to seven-tenths of an inch thick—nailed or spiked down to planks of timber laid longitudinally on the road in parallel lines, at the proper width, so as to form what are called continuous bearings. Some of the most profitable lines, and those of which the maintenance has proved the least expensive, have been constructed in this manner.

The structure of the road, however, varies in its character according to the traffic. Rails are sometimes laid down weighing from 25 to 30 lbs. per yard. In some cases of still greater traffic, the rails are laid on transverse sleepers of wood, in the same manner as on the European railways; but, in consequence of the comparative cheapness of wood and high price of iron, the strength necessary for the road is obtained by reducing the distance between the sleepers, so as to supersede the necessity of giving greater weight to the rails.

In all cases where augmented traffic may be expected from the increase of population and commerce, the earth work and structures on the lines are made so as to admit of a double line of rails, whenever they may be required.

In the working of their railways, the same attention to the economy rendered necessary by their limited traffic is observable. The engines are strongly built, perfectly safe and sufficiently powerful; but they are destitute of much of that elegance of exterior, and luxurious beauty of workmanship, which are seen upon the British locomotives. The fuel used to work them is generally wood. On certain lines, however, in the neighborhood of coal mines—such, for example, as the Philadelphia and Pottsville railway, which penetrates into the great coal fields of Pennsylvania—coal is the fuel used. The use of coke is nowhere resorted to. Its expense would make it inadmissible; and in a country so thinly inhabited, the smoke proceeding from coal or wood is not objected to.

The ordinary speed, stoppages included, is fourteen or fifteen miles. Independently of other considerations, the light structure of most of the railways would not allow of a greater velocity without considerable danger; on some of the better constructed lines we have, however, frequently travelled at the rate of twenty-five miles an hour when at full speed. This is not uncommon on some of the New England lines—on the railways from Baltimore to Washington, and some of the southern lines; as for example that between Charleston and Augusta in Georgia, the Columbia line in South Carolina, and the line from Augusta to the University of Athens in Georgia.

Notwithstanding the apparently feeble and unsubstantial structure of some of the lines, accidents to passenger trains are scarcely ever heard of in America. With an experience of nearly twenty thousand miles of railway travelling in the United States, we have never encountered an accident of any kind, or heard of a fatal or injurious one. This security may be explained by the moderate speed of the trains, and the absence of a highly active traffic.*

* In some cases of lightly constructed roads, where the bars spiked down to the planks are not kept in good order, an accident called (from its analogy to a catastrophe common on American rivers) *snagging*, is said sometimes to have happened. In this case the iron bar, worn thin and unspiked, gets detached from the plank, and as the wheel passes upon it, springs up and pierces the bottom of the carriage to the great danger of the passengers. We have, however, never met with a well authenticated case of this kind.

The form and structure of the carriages is a source of considerable economy in the working of the lines. The passenger carriages are not distinguished, as in Europe, by different modes of providing for the ease and comfort of the traveller. There are no first, second or third classes. All are first class, or rather all are of the same class. The carriages consists of a long body like that of a London omnibus, but much wider and twice or thrice the length. The doors of exit and entrance are at each end; a line of windows being placed at each side, similar exactly to those of an omnibus. Along the centre of this species of caravan is an alley or passage, just wide enough to allow one person to walk from end to end. On either side of this alley are seats for the passengers, extending crossways. Each seat accommodates two persons; so that four sit in each row, two at each side of the alley. There are sometimes fourteen of these seats, so that the carriage accommodates fifty-six passengers. In cold weather, a small stove is placed near the centre of the carriage, the smoke pipe of which passes out through the roof; and a good lamp is placed at each end for illumination during the night. The vehicle is perfectly lighted and warmed. The seats are cushioned; and their backs, consisting of a simple padded board, about six inches broad, are so supported that the passenger may at his pleasure turn them either way, so as to turn his face or his back to the engine. For the convenience of ladies who travel unaccompanied by gentlemen, or who otherwise desire to be apart, a small room, appropriately furnished, is sometimes attached at the end of the carriage, admission to which is forbidden to gentlemen.

It will occur at once to the engineer, that vehicles of such extraordinary length would require a railway absolutely straight; it would be impossible to move them through any portion of a line which has sensible curvature. However, in the construction of American railways curves are admitted without difficulty or hesitation, which would be wholly inadmissible on any European line, and thro' these curves the vehicles just described move with the utmost facility. This is accomplished by a simple and effectual arrangement. Each end of this oblong caravan is supported on a small four wheeled railway truck, on which it rests on a pivet; exactly similar to the expedient by which the fore wheels of a carriage sustain the perch. These railway carriages have in fact two perches, one at each end; but instead of resting on two wheels, each of them rests on four. The vehicle has therefore the facility of changing the direction of its motion at each end; and in moving through a curve, one of the trucks will be in one part of the curve while the other is at another—the length of the body of the carriage forming the *cord* of the intermediate arc! For the purposes they are designed to answer, these carriages present many advantages. The simplicity of the structure renders the expense of their construction incomparably less than that of any class of carriage on an European railway.—

But a still greater source of saving is apparent in their operation. The proportion of the dead weight, to the profitable weight, is far less than in the first and second class carriages on the English railways, or even than the third class. It is quite true that these carriages do not offer to the wealthy passenger all the luxurious accommodation which he finds in the best first class carriages on the English railways; but they afford every necessary convenience and comfort, and are decidedly preferable to any second class carriages on European lines.

In several of the principal American cities, the railways are continued to the very centre of the town, following the windings of the streets, and turning without difficulty the sharpest corners. The locomotive station is, however, always in the suburbs. Having arrived there, the engine is detached from the train, and horses are yoked to the carriages, by which they are drawn to the passenger depot, usually established at some central situation. Four horses are attached to each of these oblong carriages. The sharp curves at the corners of the streets are turned by causing the outer wheels of the trucks to run upon flanges, so that they become (while passing round the curve) virtually wheels larger than the inner ones. We have seen, by this means, the longest railway carriages enter the depots in Philadelphia, Baltimore, and New York, with as much precision and facility as is exhibited by the coaches that enter the gateway of the Golden Cross or the Saracen's Head.

The cost of construction of the American railways has varied between very wide limits, as the traffic upon them has been greater or less. The average cost of the passenger lines may be taken at about £9000 per mile.

Of all the European states, after Great Britain, that which first and most energetically directed its efforts to the establishment of improved means of intercommunication, was Belgium. The revolution of 1830 having separated this country from Holland, it lost the mouths of the Scheldt as an issue for its commerce. The communication with the German states could not be continued by sea, and were attended with expenses by land, on the common roads, which rendered them impracticable. The coal producing province of Liege, which, before the revolution, supplied the Dutch markets, was now isolated, while those of Hainault communicated with all the chief cities. Pressed by these difficulties, the new government decided on constructing an effectual and economical communication between the ocean and the point of the frontier nearest to the Rhine, crossing the kingdom from east to west. A canal was first suggested, but MM. Lebeau and Rogier had the sagacity to perceive that an extensive system of railways would conduce much more effectually to the national prosperity: and the project was presented to the chambers, and passed into a law, on the 1st of May, 1834; in virtue of which, the railways which now overspread Belgium were constructed at the charge of the state. The works were commenced on the 1st of June, 1834, and were completed, and successively brought into operation, in the following years. In 1843, ten years after the project was adopted, the following system of lines was completed and in full work:

| | Miles. |
|---|---|
| EASTERN LINE—From Malines to Cologne by Louvain, Tirelemont, Landon, Warrenme, Liege and Verviers, with a branch to St. Trond | 91 |
| WESTERN LINE—From Malines to the sea on the north, by Termonde, Ghent, Bruges, and Ostend, with a branch from Ghent to the French frontier by Menin and Coutrai | 126 |
| NORTHERN LINE—From Malines to Antwerp, with a branch to Lievre | 16 |
| SOUTHERN LINE—To the frontier of France by Brussels and Mons, with a branch to Charleroi and Namur | 115 |
| Total | 348 |

The earlier of these lines were opened in 1838, and the others followed in quick succession. The result of the first year fully justified the government in the policy which dictated this measure. Before the establishment of these lines of communication, the number of passengers between Brussels and Antwerp per annum, was 75,000. In the eight months after the opening of the railway, the number was 541,129; and afterwards the annual intercourse between these cities amounted to a million! The profits on the capital expended on the line between Brussels and Malines, amounted in the first year to 8 per cent; and those on the line between Brussels and Antwerp, to 16 per cent. A secondary system of lines (about 200 miles,) to communicate with the inferior order of towns, has been undertaken, with the authority of the state, by private companies. Considered relatively to the population and territory of Belgium, this is the greatest work of public utility which any European state has executed in our times.

The general character of the country was favorable to the construction of railways, but this facility was not without some qualification. In the parts of the country through which the lines first constructed, passed, the surface is generally flat, and no earthworks or great works of art are necessary. It was, however, intersected by numerous and important rivers and canals, over or under which the lines were conducted by means of bridges and aqueducts. On the eastern line, a series of deep valleys were crossed by deep embankments from fifty to seventy-five feet in height, alternated with cuttings from thirty to forty-five feet deep, and a tunnel of nearly three quarters of a mile in length. In crossing these valleys, the railway is carried over and under the roads and canals by means of innumerable bridges, aqueducts and viaducts. From Ans to Liege, the declivity leading to the valley of the Meuse is worked by an inclined plane; on which the trains are drawn by a pair of stationary engines of 360 horse power. From Liege to the frontier of Prussia the imaginary difficulties have been as considerable as on any of the English railways.

The cost of construction and other statistical particulars connected with the Belgian railways, for the years 1842, 1843, and 1844, are given in this table:

| Year. | Miles worked. | Cost of construction. | Number of passengers. | Receipts from passengers. |
|---|---|---|---|---|
| 1842 | 246 | £3,454,804 | 2,724,104 | £187,373 |
| 1843 | 398 | 5,784,000 | 3,085,349 | 219,296 |
| 1844 | 348 | 5,789,872 | 3,381,529 | 271,383 |

| Year | Recei'ts for merch'dze &c. | Total rec'pts | Expenses of working | Net profit. |
|---|---|---|---|---|
| 1842 | £111,090 | £298,462 | £188,013 | £110,049 |
| 1843 | 141,960 | 361,256 | 219,064 | 142,192 |
| 1844 | 177,837 | 449,220 | 230,613 | 218,603 |

Hence it appears, that the average cost of establishing the system of Belgian lines, has been £16,600 per mile. This sum consists of the following items;

| | |
|---|---|
| Construction of the lines | £12,900 |
| Stations and their appendages | 1,100 |
| General expenses, salaries, offices, &c. | 500 |
| Material | 2,100 |
| | £16,600 |

To be continued.

### Experiments on Wrought Iron Hollow Beams for Railway Bridges.

In our last number, we presented some illustrated experiments by the Messrs. Fairbairn and Hodgkinson, and we give to day, further experiments by these gentlemen, on the rectangular tube. The first were upon circular tubes. Below, the reader will see the results upon the other shape.

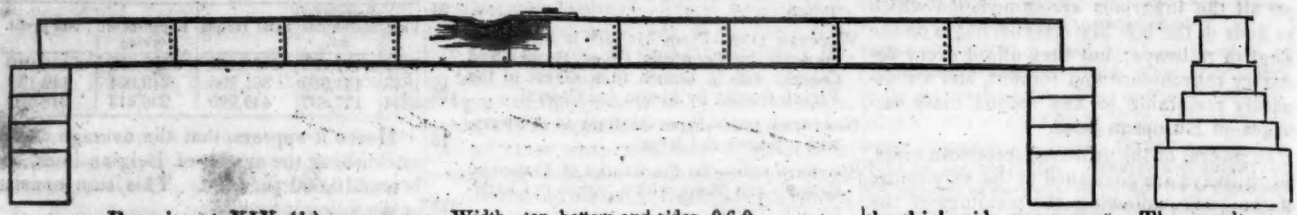
Although the circular form of tube was probably the most natural form which immediately suggested itself as the fittest for the construction of a tunnel of wrought iron plates, like that to be thrown across the Menai straits for the Holyhead railway; yet it is by no means the form which is either the most convenient, the most easy of construction, or the most scientifically appropriate.—The rectangular form has been adopted both for cast iron beams and for malleable iron rails, in the universal practice of the profession. The experiments of Mr. Hodgkinson and of Mr. Fairbairn have long made known the appropriate forms of beams; and a flat web form is undoubtedly the proper form for this purpose. Let us take a common malleable rail, of the ⌶ form, and suppose the middle web to be split in two, and placed on both sides of the top and bottom flange, then we should have a hollow iron rail, truly representing the conditions of the great Holyhead tunnel, with only this difference of large and small, and of the train running *on* the one and *in* the other. It is true there are lateral strains on both tunnel and rail; but they are by no means the greatest; and the precautions in both cases necessary for the vertical strain are, in all probability, at least sufficient for a casual horizontal strain from wind or other causes.

The former series of experiments which we have given, were made by Mr. Fairbairn on circular tubes; but that which we now give is on the rectangular form, being that ultimately intended for the bridge, and certainly that which is every way best suited for the general purposes of railway practice. It will also be observed that the experiments give greater strength than in the cylindrical experiments.

EXPERIMENTS ON RECTANGULAR TUBES.

In the first experiment a square form was adopted, 9·6 in. every way; top, bottom and sides being 1-16th of an inch in thickness. The span was 17 ft. 6 in. In the second the same form and dimensions were used, only the top plate was increased in thickness; and this, it will be seen, more than doubled its sustaining power.

Fig. 14. Showing the fracture on the upper side.
Elevation of beam. Section.



*Experiment XIV.* (*b.*)

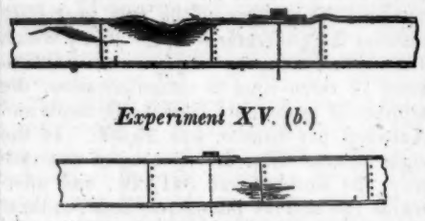
The same beam, with a top plate of 0·272 in. thick—bent, 1·13 in.; broke, 8,272 lbs.

This is very instructive. We give no diagram of the second fracture, because it was a simple opening up of the lower side of the plate by tearing it asunder in a large crack at the rivets. It is plain, however, that great practical strength is gained by making the top strong enough to prevent it from getting crushed or buckled up by compression. The same remark is illustrated by the following:

*Experiment XV.* (*a.*)

Span, 17 ft. 6 in.
Thickness—top, 0·75; bottom, ·142; sides, ·75 in.
Width—top, bottom and sides, 0·6 ft.
Bent, ·94 in.
Broke, 3,738 lbs.

Fig. 15. Showing the fracture.



*Experiment XV.* (*b.*)

This was the same tube reconstructed with the thick side uppermost. The result was, bent, 1·88; broke, 7,148 lbs.; and in this case also the bottom gave way by tearing asunder, without buckling at the top.

*Experiment XIV.* (*a.*)

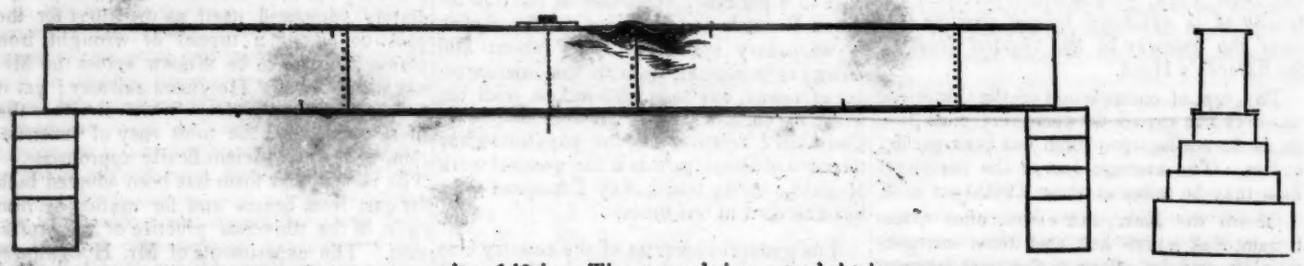
Span 17 ft. 6 in.
Thickness—top, bottom and sides, ·075 in.
Width—top, bottom and sides, 9·6 ft.
Bent, 1·10 in.
Breaking load, 3,738 lbs.

The next experiments had the same width, but a greater depth of tube, being twice as great as formerly, and with one side considerably thinner than in the last. The sustaining power was much increased.

*Experiment XVI.* (*a.*)

Span, 17 ft. 6 in.
Thickness—top, ·059; bottom, ·149; sides, ·075 in.
Width—top and bottom, 9·25; sides, 18.25 in.
Bent, ·93 in.
Broke, 6,812 lbs.

Fig. 16. Showing the fracture in Experiment XVI. (*a.*)
Elevation of beam. Section.



*Experiment XVI.* (*b.*)

This was the same upside down, and the result was nearly double the sustaining power—for it bent, 1·73 in.; broke, 12,188 lbs.—Still, however, the top plate was not strong enough to break the bottom, but doubled up, as in

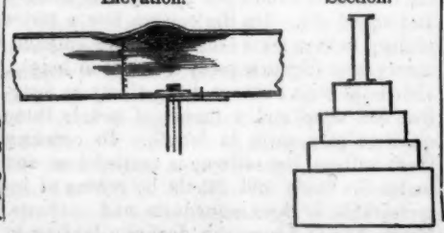
Fig. 16. (*b.*) Showing the fracture.

In the next experiment the sides were brought much nearer, and the upright tubes are brought within 2¼ inches of each other, the top tube being 6 in. wide, and the bottom 10 in., and the thickness of the sides increased to ·149 in. The space being extended to 24 in. shows a great increase of strength.

*Experiment XVII.*

Span, 24 ft.
Thickness—top and bottom, ·160; sides, ·149 in.
Breadth—top, 6 in.; bottom, 10 in.; sides, 15 in.
Bent, 2·66 in.
Broke, 17,600 lbs.

Fig. 17. Showing the fracture.
Elevation. Section.



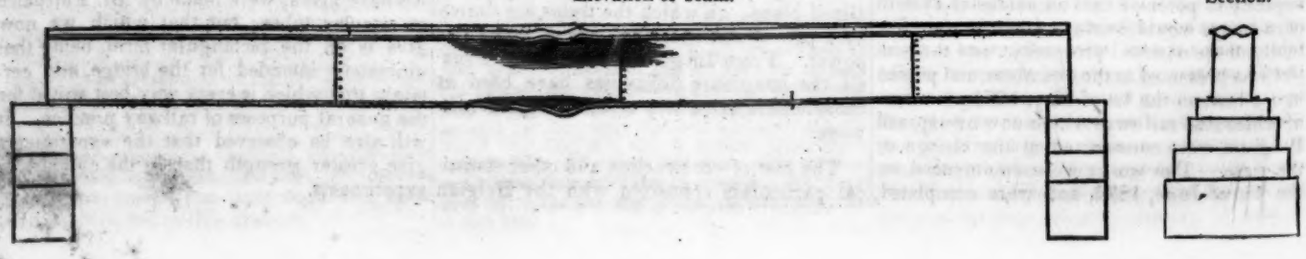
From these experiments we are disposed to deduce the general conclusion, that the compressed or top side should be of considerably greater thickness than the bottom, and also that thickness of the sides seems a great element of strength. The experiments themselves are also valuable as units of calculation.

The necessity of preventing the crumpling of the upper or compressed side suggested a tubular or corrugated form; it was tried in the following experiment:

*Experiment XXIX.*

Span, 19 ft.
Thickness—top, ·230; bottom, ·180 in.
Width—top, 7·75; bottom, 15·40 in.
Bent, 1·59 in.
Broke, 22,469 lbs.

Fig. 29. Showing the fracture in Experiment XXIX.
Elevation of beam. Section.



This appears to have suggested the cellular tube as a convenient form for the larger experiments, the results of which we have already quoted.

*Correspondents will oblige us by sending in their communications by Tuesday morning at latest.*

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### CLOSE OF THE YEAR.

The present number closes the second volume of the new series, and completes the nineteenth volume of the RAILROAD JOURNAL. This number is so crowded with other matter, that but little space is left us to say an appropriate word or two at the close of the year. We embrace the opportunity, however, to present to our readers, the compliments of the season, and to express our thanks for the favors we have received at the hands of our patrons, during the past twelve-month. In the next volume we hope to number all our present subscribers—and many more—for whose benefit we shall always labor, and whose continued support we hope to deserve. The course we have pursued in the Journal, speaks for itself, and at the end of 1846, we refer to it with pleasure. The future is before us, and for 1847 we cordially wish our readers and friends "A HAPPY NEW YEAR!"

### Railroads in the United States.

It will probably be recollected by many of our readers that we published in the Journal of 1845, a tabular statement in relation to the railroads in the United States. In February last we discontinued the publication of that table, with the intention of preparing, at an early day, another much more extensive and accurate; but we found it a much more difficult task to perform than we anticipated, and hence the delay of its appearance until after the close of the volume for 1846. We have at length, however, through the untiring efforts of our late associate, MR. GEORGE C. SCHAEFFER, completed a table of the railroads in the United States, comprising a greater amount of useful information, on this subject, than has ever before been collected into so small a compass. No one can, from an inspection of it, imagine the amount of labor required and bestowed upon this table—and no description we can give will convey as correct an idea of the labor required as the following extract from the letter accompanying the last pages of the copy. Mr. Schaeffer says:

"I think it would be well to say that every known road has been inserted, because from the table the merits of the line may be discovered, and valuable charters yet in force, good routes nearly ready for the rails, may for a small sum be obtained, and the whole put in profitable operation. I have, almost by accident, discovered several which are actually in this condition. The old Monroe road is an example of what may be done. I have no doubt that the Illinois routes will, before long, attract the attention of eastern capitalists, and the state will be glad enough to get helped out of its scrape. Indiana has given very favorable terms to the Madison and Indianapolis company, and they are making money, and before long the state will receive a handsome dividend. I mention these things to show the necessity of naming all the roads. Eastern people know almost nothing of western roads, and when the western people see the ghosts of their old speculations rise up again, they may be tempted to try to reanimate those which are worth the trouble. At any rate they may be induced to correct whatever may be wrong, and to supply omissions. As an instance of De Gerstner's accuracy, I might mention that in one or two instances where letters have been published in the Journal, in the last year or so, giving accounts of unfinished or abandoned works, such as from Alabama and Ohio, I find that even to the number of miles of grading, etc., already done, he is exact.—Moreover he gives, and I have inserted in the table, what few persons would send, and in some instances what no one can now tell, the grades, curves, etc., upon located lines, as all his information was obtained from engineers, etc., upon the spot. But I have not rested upon him alone; I have searched the Journals for nearly every road, and for some through many volumes. Of course the information obtained is worth the more for the pains, although it does not appear. Sometimes a long hunt decided me to omit some figures. The table looks to be imperfect, but it is really more perfect than if I had merely copied what proved to be wrong. If you had seen me with chairs, tables and floor covered with maps, open pamphlets, etc., etc., stooping first over one, then over another, you would have seen that the mere bodily labor was severe. Although I have been picking up materials for it for six months, I had no idea of the job; probably if either you or I had had an idea of the undertaking, we would never have attempted it—upon the present scale at least."

The number of roads and branches described exceeds 210; and the introduction and accompanying notes, illustrating the table, will occupy nearly as much room as the table itself.

It was our intention to have inserted this map of important information in this volume of the Journal, but we are obliged reluctantly to defer it for a week or two yet, in order to have it put in type, and the proof properly corrected.

### New England Railroads.

Within a few days the annual reports from all the Massachusetts railroads will be forthcoming, and it is expected that these reports will show an unexampled advance in the business prospects of the routes in that state. All accounts agree in the belief that a very greatly increased business has been done during the past, over any preceding year, and in the case of the Fitchburg road, which, last season, paid a dividend of *ten per cent.*, the receipts for the week ending on the 14th inst. were $1,400 over the same week last year. The business upon the Western road last week, was near $6,000 over the amount of the corresponding week of last year. The reports will be highly interesting the present season, and we shall look anxiously for the documents.

### Long Island Sound Navigation.

*Another Steamboat Gone!*

We learn with regret, that the elegant steamer "MOHEGAN," running between N. York and Bridgeport, was totally lost on Saturday, by running on a ledge of rocks near *Sands' Point*, L. I. Sound. She sunk to within two feet of her hurrican deck. It is said no lives were lost. Does not this suggest another argument in favor of the early establishment of the *railroad route* through from Boston to New York?

### Telegraph to Cincinnati.

It is now thought that the magnetic telegraph will be finished, and in working order to *Cincinnati*, at latest, by the 1st of July next. It is the opinion of the parties interested that it will not require over six months to complete it.

### Whitney's Railroad Project.

Our citizens were gratified on Wednesday evening last, at the Chinese Museum, by an address from MR. WHITNEY, on the subject of his immense project of *a railroad to Oregon*. There was a good deal of anxiety evinced to hear him, before the lecture took place—and a very intelligent and highly respectable audience attended on him, upon this occasion.

Mr. Whitney addressed the meeting for a considerable length of time, upon the importance and magnitude of his scheme, and presented, as plainly as could be done upon such an occasion, the advantages which must accrue from this stupendous project. Mr. W. gave his views at length upon his plan, and the benefits to be derived from the consummation of his proposals. The project for this road has been already reported favorably upon by a committee of the U. S. Senate, and a bill was last year introduced into that body, authorizing the work.—The *Inquirer* of this city, alluding to the matter, remarks that

"Unless something of a definite character be done upon this subject in the course of a short time, the lands which are necessary to the undertaking, will be taken up, and this magnificent project will be greatly retarded. Thus far, public opinion has been expressed upon the subject in the most unequivocal manner. Demonstrations of approval have been made in Pittsburg, Cincinnati, Louisville, St. Louis, Dayton, Columbus, Wheeling, and other cities and towns. Mr. Whitney is of opinion that the work may be constructed in fifteen years, and with no other cost to the government than the lands provided for in his scheme. The distance is 2,400 miles.—The work will commence on lake Michigan, and terminate on the Pacific at the Columbia river, or some equally available point. The vast influence of such a road can scarcely be estimated."

Mr. Whitney estimates that by this route "an individual may travel from London to China in thirty-one days—or from Philadelphia to China in twenty-one, and proceed no faster than we now do by steamboats and railroad."

This country, adds the Inquirer, would in a measure be rendered the centre of the active and commercial world—the great highway—and the English mail for Calcutta would no doubt pass over this route as well as the trade and travel to and from Asia.—These, at least, are the views of the enterprizing and energetic projector of the undertaking, and while they are calculated to startle, they cannot but interest. The fact that a committee of so grave and dignified a body as the senate of the United States

reporting favorably to the road, after a full examination of the subject, is well calculated to make an impression, or at least to direct to the subject the attention of the thoughtful, the enlightened and the patriotic.

Mr. Whitney deserves well for his ardent and continued endeavors in this cause, and we most heartily wish him the fullest success in this great undertaking. He has gained the good will of thousands of influential citizens in behalf of his object—and, stupendous as is the work, it may be rendered feasible in time.

The meeting at the Museum was also eloquently addressed by his honor, Mayor SWIFT, who presided, and also by Josiah Randall, Esq., Hon. Peter A. Browne, Wm. D. Kelley, Esq., and others. They all spoke in glowing terms of the enterprize, and of the great revolution, commercial, political, and moral, that it was destined to work. The speakers were listened to with the greatest attention, and were much applauded. To afford a better idea of the geography of the two great continents of America and Asia, which the project is intended to connect, a map was suspended over the platform, and to which frequent reference was made by the speakers.

The following gentlemen composed the officers of the meeting:

*President*—His Honor, JOHN SWIFT, Mayor.

*Vice Presidents*—Col. James Page, Hon. Richard Vaux, David S. Brown, Federick Stoever, Dr. G. F. Lehman, Robert Toland, William M. Meredith, Hon. J. F. Belsterling, A. G. Ralston, Peter A. Browne, ,Thomas D. Grover, Charles B. Trego, Gen. William Dungan.

*Secretaries*—Hon. W. A. Crabb, Wm. D. Kelley.

A preamble and the following resolutions were submitted to the meeting, and unanimously adopted:

*Resolved*, That we cordially approve of the project of Asa Whitney, Esq., for the construction of a railroad to the Pacific, and respectfully petition Congress to grant or set apart before the close of the present session, the lands prayed for by Mr. Whitney for this purpose.

*Resolved*, That we request the senators from Pennsylvania and members of Congress from the city and county of Philadelphia, to give this measure their earnest attention and support.

*Resolved*, That we respectfully suggest to his Excellency, Francis R. Shunk, Governor of the commonwealth, the propriety of calling the attention of the legislature to this great national project.

*Resolved*, That the officers of this meeting be requested to transmit copies of the proceedings to his excellency the governor, and the senators and members of Congress from this state.

The meeting adjourned, after listening to the speeches of the gentlemen named, and the utmost good feeling marked the proceedings of the convention. In connection with the above, we refer the reader, with pleasure, to the following extract, which we make from the late Message of the governor of Ohio, who, it will be seen, alludes to the subject of Mr. Whitney's great plan in the most approbatory manner:—

"I deem it proper," says the governor in his Address, "to call your especial attention to an enterprize which is proposed, of a great national character, magnificent in its object, and having a direct bearing upon the future commerce of Ohio, as well as that of the entire union, and probably of the whole world. Mr. Asa Whitney, a gentleman of intelligence, of practical business capacity, and extraordinary energy of character, has suggested the means and submitted to Congress a proposition for the construction of a national railroad from Lake Michigan to the Pacific ocean, near the mouth of the Columbia river. This projected public improvement would complete a chain of communication by means of railroad and navigable waters between the Atlantic cities and the Pacific ocean, crossing the state of Ohio in its course. It would connect together the vast interests of our extensive country, make the commerce of the Pacific tributary to the U. States, and open to us an immediate, easy, and direct communication with China and other countries of Asia, the Eastern Archipelago and other islands in the Pacific, as well as with the countries on the western shores of North America. Such a chain of communication across our continent, being on the nearest and most direct route, and furnishing by far the safest, easiest, and most speedy medium of communication between the commercial nations of Europe and the countries of Asia, would be crowded by the merchant, the traveller, and the curious from all quarters of the world. It would produce results in commercial, moral, and political points of view, vast beyond our limited capacity of conception at this time.

The feasibility of Mr. Whitney's proposition is susceptible of easy and plain demonstration. To pronounce it visionary on account of the magnitude of the project, would evince a forgetfulness of the vast achievements of the age, and a prevalence of the benighted prejudice which clouded the prospects of the enterprizing benefactors of mankind in ages gone by. The work proposed is one that will cost the United States nothing in case of failure; and it is wholly unobjectionable, even to the most cautious, in relation to the grant of special privileges by the government.

I, therefore, submit to your consideration the expediency of aiding this most magnificent project of the age, directly connected as it is with the future prospects and interests of Ohio, by every legitimate influence and authority."

### Sunbury and Erie Railroad.

We understand from an exchange paper that a convention of the parties friendly to the *Sunbury and Erie railroad*, will be held in this city about the middle of January next, having in view to prosecute the enterprize of a *northern* route by railroad, hence to Pittsburg. A special meeting of the Erie Board of Trade was recently held, and the Hon. James Thompson, Gen. C. M. Reed, W. Milner Roberts, Esq., civil engineer, J. D. Johnson, Esq. state senator, and Messrs. Gould and Sanborne, representatives, were appointed delegates to the Philadelphia convention.

This route, says the Miners' Journal, was surveyed several years ago, when the state canal was in contemplation, and was abandoned at that time for the existing route, upon the ground that it was thought that from its more northern latitude, the canal would close earlier in the season. It has been ascertained that there are 2000 feet less rise and fall on the northern route than on either of the others, which, in the opinion of experienced engineers, would make it preferable to a route which might be a few miles shorter, but in which there would be heavy grades to overcome. The long and troublesome passage of the Alleghany mountains would be avoided, as there is a gap at the head of Bennett's branch, through which a railroad could be laid without difficulty.

The route of the proposed road would be from Sunbury to Williamsport; thence up the west branch of the Susquehanna and the Smnemahoning creek to Bennett's branch. From this point two branch roads would be constructed, the one leading to Erie, the other passing down the Clarion and Alleghany rivers to Pittsburg. The road would pass through the rich iron regions of Pennsylvania, and would, it is evident, derive a heavy trade from this source alone. By means of the Williamsport and Elmire railroad, it would tap the New York and Erie road at a point nearer to Philadelphia than New York, and if a railroad communication was secured from that point to Philadelphia, an immense western trade would be secured to that city.

We agree with a cotemporary that the friends of the Sunbury and Erie route, in all the counties along the proposed line, will do well to appoint delegates to this convention. By making a railroad from Harrisburg to Sunbury, Philadelphia would be united to Pittsburg and Erie by a route which possesses great and decided advantages. But while we urge upon the friends of the northern route, that they push on their enterprize with spirit and energy, it must not now be allowed to interfere with the movements connected with the great *central* route, which, we are gratified to learn, *promises well*. We have not a doubt but that there will be ample business for *both* roads, when completed.

The northern route, even if it only reaches Erie, is a very important link in the great chain of intercommunication north-westward, which must be established, we think, at an early day, and while we go heart and hand for the great *central* road, we shall be glad indeed to see the Sunbury and Erie project prosper as well; the more especially as it will open a communication between the city of Philadelphia and Lake Erie.

### The Magnetic Telegraph.

A good suggestion is made in a late number of a Baltimore paper, in reference to the proprietorship of the magnetic telegraph. A general desire seems to have been evinced that this invention shall become the property of the government—and that it should be "placed under the control of the postoffice department; and such a representation will be made to congress, it is thought, as will induce members to vote for its purchase."

"It would certainly yield," continues the paper from which which we quote, "a considerable revenue to government; whereas, managed by private companies, it greatly reduces the income of the postoffice department. There is a use to which it might be advantageously applied under government which we have not seen noticed—that is, in the transfer of money from one place to another. We will illustrate what we mean. Suppose a person in Baltimore has to pay a sum of money in New York, or other place to which the telegraph may be extended; instead of purchasing a draft, as at present, and sending it by mail, let him deposit the amount with the agent of the telegraph here, who instructs the agent in New York to pay the amount as per order. This can be done and an answer received in a few minutes. For this service, the telegraph should be paid the usual price of transmitting intelligence, together with the difference of exchange, should it be deemed expedient. By this process, the merchant in Baltimore would not be compelled to lose the use of his funds for an hour, and would be guarantied against all risk. It would be applying the telegraph to a legitimate purpose, as an appendage to the postoffice—and a daily amount of such transactions might, if required, be rendered to the postmaster general, or treasury department. But, whether this idea be adopted or not, the telegraph should be taken out of the hands of private individuals, and be applied to public purposes."

The plan proposed appears to us to be a very excellent one—and well worthy the notice of congress. If the present proprietors would dispose of their interests at a fair price, the bargain would turn out a most profitable one for the United States, in the end, we think.

### The Central Railroad.

The best feeling is being evinced in relation to the *great Central Pennsylvania railroad*—and we see no obstacle to its completion at an early date, if the same favorable disposition *continues* towards this great enterprize, which has thus far crowned the ef-

forts of those who have commenced in the undertaking. The U. S. Gazette says that upwards of *twenty-four thousand four hundred shares* have been taken by individuals, of which amount twenty-four thousand shares are subscribed for by citizens of Philadelphia. We learn from the Inquirer that the bank of the Northern Liberties has subscribed 100 shares—also the bank of Penn Township has subscribed 50 shares. The other banks of the city and county should follow these good examples. We also learn that the committee obtained in the block between Arch and Race, and Second and Fourth streets, subscriptions to 300 shares. Among the subscribers are several draymen and porters. We mention the fact to their honor. Philadelphia is moving in the proper spirit in relation to this great work, and our citizens who are exerting themselves with such energy and activity, deserve hearty praise.

The board of trade, too, has subscribed for twenty shares, which comprises nearly all their funds. This is, all things considered, the most liberal subscription that has yet been made to the stock. It is said that the individual members of the board of trade are among the largest subscribers to the stock of this road.

This argues *well* for the project, and we are happy to know that the city of Philadelphia has come up nobly to this work. It will now be pushed on as fast as is practicable, without doubt.

### Pittsburg and Baltimore.

The Baltimore Sun states that the proposition of Mr. McLane, relative to the Pittsburg and Connellsville railroad, and the resolution adopted by the board of directors, to be presented at the special meeting of the stockholders in February next, has given great dissatisfaction at Pittsburg. At a meeting of the directors of the Pittsburg and Connellsville railroad company, held on Monday, the 14th inst., the following resolutions were adopted:

Resolved, That this board have seen with surprise and sincere regret, the conditions upon which the directors of the Baltimore and Ohio railroad company recommend a subscription of six hundred thousand dollars to the stock of the Pittsburg and Connellsville railroad company, for the following reasons:

First. Because we have heretofore been led to believe that if a liberal grant of the right of way could be obtained, that the Baltimore and Ohio railroad company would take upon itself the greater share of the expense of making the road, while now it seems that the company is disposed to defray the smaller portion of the cost, and at the same time to require from this company a pledge which would secure to the Baltimore company for all future time the control of the action of this company upon all questions of connection.

Second. Because the Baltimore company, not only by one of their conditions decline to become the principal undertaker in the completion of a work which must benefit their city more than Pittsburg, but call upon the Pittsburg company to insure the completion of the work to a point not even on the preferred route to Cumberland.

Third. Because after the Baltimore and Ohio railroad company have given to any company in Virginia the right to connect a railroad from Wheeling, Fishing creek or Parkersburg with the Baltimore and Ohio railroad, they now ask us to act a more churlish part to our brethren of Pennsylvania.

Resolved, That for the foregoing reasons, among others, the board of directors of the Pittsburg and Connellsville railroad company deem the conditions recommended to be attached to the subscription by the Baltimore and Ohio railroad company to be wholly inadmissible.

Resolved, Therefore, that inasmuch as it is highly desirable that the negotiation with the Baltimore company, which has been so perseveringly protracted, should be brought to a close at as early a day as practicable, that the president of this board be requested to address a letter to the president and directors of the Baltimore company, urging the propriety and expediency of calling the stockholders together prior to the first Monday of February, the day on which the stockholders of this company must at the latest assemble.

Resolved, That a refusal or declination to call their stockholders together at an earlier day than February, so as to give the stockholders of this company the means of acting understandingly in relation to the proposed subscription of the Baltimore and Ohio company, shall be considered a persistance in those conditions, and that the president of this company be then directed to call the stockholders together at the earliest legal day.

### Letter from Professor Morse.

The following letter from Prof. S. F. B. Morse appears in the Philadelphia Ledger, in relation to his new telegraphic invention for printing the alphabet, (instead of the present hieroglyphics,) and for which he proposes taking out a patent.

Messrs Editors: I noticed an announcement in your paper of yesterday, that I had recently made "some improvements in my telegraph, for which I had entered a caveat at the patent office." It is true that I am taking measures to secure by patent some recent modifications of my telegraphic apparatus, simplifying the printing of my telegraphic alphabet; my experiments upon this point having been satisfactory. It is true, also, that I have applied a fact in electro magnetism, (never to my knowledge before applied,) in the construction of an apparatus for *printing the common letters of the alphabet*, and I have devised an apparatus of the greatest simplicity.

But simple as it is, incomparably more so than any contrivance for that purpose as yet published, I really do not attach any great importance to it, for the reason that it is mathematically demonstrable, and that from the very nature of such a contrivance, it cannot successfully compete in the rapidity of recording intelligence, with the simple mode I have in use, and which is a consequence, mainly, of the intervention of my telegraphic alphabet. For example, the President's message, entire, on the subject of the war with Mexico, was transmitted with perfect accuracy, [exclusively for, and at the expense of the Baltimore Sun,] at the rate of 99 letters per minute. My skillful operators in Washington and Baltimore, have printed these characters at the rate of 98, 101, 111, and one of them actually printed 117 letters per minute, and I have little doubt that the accomplished operators in your Philadelphia office could easily show similar results. He must be an expert penman who can write legibly more than 100 letters per minute; consequently, my mode of communication equals, or nearly equals, the *most expeditious mode known of recording thought.*

A Rochester paper recently contained a paragraph, which has been extensively copied—to the effect that there was a new invention about to appear, which was to "impress every letter perfectly distinct on paper," and "*of course*," the writer observes, "do away with the characters to represent the alphabet."—This effect of any such invention is by no means such a *matter of course* as the writer supposes. Allow me a word on that point.

My very earliest conception of the telegraph embodies this idea, to wit: "*The marking, in a permanent manner, of a character* to denote the intelligence transmitted." It was certainly very natural, then, that *the marking of the common letter of the alphabet* should be suggested to my mind, and I of course expended sufficient thought upon the subject to perceive that it was practicable in several ways, but also that any way, at that time was necessarily complicated. I was intent on *simplicity*, and adopted my present system because of its simplicity and greater efficiency.

My friend and co-proprietor in the telegraph Mr. Vail, some time in the spring of 1837, was intent on producing an instrument of this kind, and gave the project much thought. I uniformly discouraged him, however, on the ground, not that such a plan was impracticable, but, in comparison with the method I had devised, *worthless*, since, were such a mode perfectly accomplished and in actual use, my more simple mode would inevitably supersede the more complicated mode. Mr. Vail, in his work entitled, "The American Electro-Magnetic Telegraph," discusses this whole matter from page 157 to 171. Experience has proved that when my system has been put to the test in competition with the common letter printing telegraphs in Europe, mine has been proved superior. In Vienna, for example, Mr. Bain's letter printing telegraph, (the most ingenious as yet published,) was explained with mine publically before one of the largest and most learned assemblies ever convened in that capital, comprising the Count and notables of Austria, and the American telegraph carried the day by *acclamation*, and is now adopted by that government.

I wish it distinctly understood, therefore, that my present invention of an apparatus for printing the common Roman letter, was not induced by any expectation that it will supersede my present plan, but solely to give the choice to any, (if there are any,) who, after all the evidence which has long been published, of the *intrinsic unimportance* of such a result, may be desirous of seeing the common Roman letter printed, instead of my simpler character signifying the same thing. I accomplish this result by means of an apparatus very far less complicated than any published here or in Europe. I remain gentlemen, your most obedient servant,

Samuel F. B. Morse.

### The Coal Region.

The Cumberland Civilian, of a late date, contains an able and highly interesting article upon the subject of the coal region of Allegheny county, Maryland, from which we make the following extracts. The account here given will repay an attentive perusal:—

The "coal measures," as they are technically called, are composed, says the Civilian, of a number of strata of bituminous coal, embraced between the elevations of six hundred and eighteen hundred feet above the basin of the Chesapeake and Ohio canal at Cumberland, and the Maryland section is comprised in an area, speaking generally, of two miles in width, and twenty miles in length.

The arrangement of these strata follows one general system, the curves and inclinations peculiar to one set being, with slight local modifications, common to all the veins in the series. Their shape is that of a trough, its longitudinal direction being from northeast to southwest, the traverse section rising gradually from the lowest level or bottom on either side. These inclinations constitute, in mining phrase, the "dip" of the seam, and give to the miner facilities for carrying proper draining galleries into the scene of mining operations.

The Preston spur of Dan's mountain, which projects across the northern portion of the coal trough, practically leads to a division of the coal measures into two sections, the northern and southern. They are both favorably situated and easily accessible to the operations of the miner, and are rendered independent of each other by the Potomac valley and the tributaries of that river.

The surface covered and the exposure of the coal strata are by far more extensive in the southern than the northern section, but extensive improvements must be carried up the Potomac valley to a distance of thirty-four miles, either by railway or slack water navigation, before such advantage can be taken of the otherwise excellent position of the southern section as profitably to develope its resources.

The northern section lies upon Baddock's and Jennon's run, at an average distance of ten miles from Cumberland, and all the veins are accessible by the valleys of these two streams. It is proper, however, to state that, although the series of coal strata in the aggregate of veins is computed to be sixty feet in workable thickness, in seams varying from eighteen inches to fourteen feet, yet the great or fourteeen feet vein, has thus far attracted the chief attention of capitalists to its development.

This magnificent seam of almost pure coal is cut by the valleys of the two streams above mentioned, which take their rise in its very lap.

On Braddock's run the property of the Maryland mining company is situated, and at the short distance of three-fourths of a mile to the north that of the New York mining company. Both of these associations have completed extensive improvements which are calculated to perform a large amount of transportation, the railway of the New York mining company acting as a feeder to that of the Maryland mining company, and having a connection with it near their mines and depot. These two companies occupy about three thousand acres of the great vein, nearly every part of which can be readily reached for mining operations. There are also numerous private properties situated on the Preston run and its tributaries, many of which are already opened, and have become feeders to the railroad leading from the mining region to the town of Cumberland.

On Jennon's run the entire series of coal strata is exposed by its valleys, including several valuable properties in the great vein. The Mount Savage iron works, which are among the most extensive in the United States, are located upon this stream, and likewise possess a railway communication with Cumberland. These works have been for some length of time in operation, and have called for an investment of nearly a million of dollars to place them in their present condition. A railway, extending up the valley to the foot of the Frostburg hill, and worked by horse power, has also been completed and is in operation. The Cumberland, the Alleghany, and the Clifton companies, all chartered associations, find an outlet by this new avenue to the railway of the Mount Savage company. Many individual properties will also be opened and advantageously worked by means of this improvement.

Through the southern section of the coal measures passes the stream called George's creek, which taking its rise near Frostburg, and flowing in a southerly direction, empties into the Potomac at Westernport.

At Lonaconing, midway between the source and the mouth of George's creek, are situated the iron works and collieries of the George's creek coal and iron company, who contemplate opening a communication with the railway of the Maryland mining company, intersecting it at Clary's eight miles from Cumberland. The length of the contemplated branch will be about seven miles, and will open a rich section of the coal and iron region. The surveys have been completed, and it is hoped that a great length of time will not elapse before this important improvement will be commenced.

By means of these various improvements the whole northern section, and a portion of the southern section of the great coal field of Maryland, will be provided with cheap and expeditious means of communication with the markets, through a common outlet at Cumberland. The Mount Savage road passes down Jennon's run to its junction with Will's creek, and following that stream through the gorge in Will's mountain, connects with the Baltimore and Ohio railway at Cumberland. A ready connection can also be formed with the Chesapeake and Ohio canal on its completion.

The railway of the Maryland mining company commences at the foot of the Frostburg hill on Braddock's run, and, following the southern side of the valley, receives in its course the branch of the George's creek company, and also from individual proprietors located on Preston's ridge. This road crosses Will's creek at the western end of the gorge, two miles above Cumberland, and joins the Mount Savage railway, making this latter a common outlet at Cumberland. When the Chesapeake and Ohio canal is completed to Cumberland, the Maryland mining company will be able to make an independent location and connection with the canal basin on the Potomac. By leaving their road where it crosses the depression between Dan's and Will's mountains, with the aid of a mile of railway and two planes, each one half of a mile in length, the coal can be placed on the canal, at the depot already purchased by that company for the purpose, on the north side of the Potomac above Cumberland. The trade intended for the canal will thereby be entirely disconnected from the trains intended for railway transportation to Baltimore, and will save the distance of three miles in reaching the common outlet at Cumberland.

It is not possible at this time to make any probable estimate as to the amount of coal which can be furnished by these various companies. The amount must necessarily be vast, whenever the trade shall justify the full expansion of their capacities. The following statement as to the probable capacities of the two most important companies now in operation will convey an adequate idea of the vast and inexhaustible resources of this much favored region:

The Maryland mining company, with the addition of the necessary engines and cars, would possess at the present time facilities for the transportation of five hundred thousand tons of coal per annum; and the New York mining company, with the same improvements, could make arrangements to do a similar amount of business. From these two collieries alone a supply of coal can be produced and transported equal to one million of tons per annum.—This amount of tonnage would require 3,334 tons of coal to be mined and transported daily, employing a force of 1,200 miners, or 600 in each of the great companies now in operation.

The plan of mining operations will admit of great expansion. From the horizontal main gallery, six men will be required for each transverse gallery and its adjacent rooms; therefore one hundred of these galleries of the size of nine by ten feet, would be constantly employed in discharging their excavated contents into the main gallery and depot. A progress of four feet per day in the galleries and rooms would insure the delivery of a million of tons per annum from the collieries of the Maryland and N. York mining companies. The available length of the main galleries will be twenty-one thousand feet, and as seventeen hundred feet front will be required on the main gallery to accommodate the transverse entries and their separating columns, the whole can be worked twelve years, at the rate of a million of tons per annum, without modifying the present plan of working operations.

It will thus be seen that, if the supply of coal is derived from these two sources alone, with the facilities of transportation already completed, it must, under any circumstances, equal the demand.

### (Official) Reading Railroad.

A comparative statement of the business on the Philadelphia and Reading railroad for the week ending—

| | Dec. 21, 1844. | Dec. 20, 1845. | Dec. 19, 1846. |
|---|---|---|---|
| Travel..... | $1,362 88 | $1,948 92 | $1,942 90 |
| Freight on goods. | 1,244 26 | 2,919 26 | 2,900 18 |
| " coal... | 9,650 50 | 14,662 63 | 22,001 30 |
| | $12,237 64 | $19,530 81 | $26,844 38 |
| Coal trans.—tons. | 9,800 | 12,175 | 15,925 |

### Miscellaneous Items.

*A Log Bridge.*—A bridge is now nearly finished, which extends across the Delaware river at Narrowstown, Pa., a distance of two hundred and sixty feet, by a single span, and without support of check braces at the ends. This bridge is constructed on the plan invented by Mr. George W. Thayer, of Springfield, Mass., and which has in many places taken the preference over other kinds of timber bridges. It is twenty-two feet wide, with twenty feet posts; its entire elevation above the water is fifty-five feet: constructed of white hemlock timber, and is the longest span of bridge in the United States.

*Machine for Measuring the Velocity of Railway Trains.*—Mr. M. Ricardo laid before the late meeting of the British Association, a model of his very beautiful machine for registering the velocity of railway trains. The object of it is to furnish the railway companies with a record of the work done. By this means they would be often enabled, in cases of any accident, to assign correctly the nature and cause of such accident, and so prevent its recurrence. The machine is closed up under the seat of a railway carriage and when placed there it marks on a strip of paper the speed of the train, the time of its passing every half mile, and the length of every stoppage at a station. It is, in short, a mechanical inspector of trains. He described the apparatus and stated that it had gone some thousand miles without accident.

*Boston Aqueduct.*—The following statement respecting the method adopted for the construction of this work, appears in a late Boston paper. At Needham about a fourth of a mile above the west depot, on the Worcester railroad, 300 feet of the brick conduit have been laid, by way of experiment, and a most beautiful specimen it is of this class of work. The form of the conduit is oval, or egg shaped. The height in the clear is six feet four inches, its width five feet, the arch eight inches in thickness. The column of water which is to flow in the conduit, is not to be more than three feet ten inches in depth. The committee passed through it erect, with their hats on. The best quality of brick has been used, and they are handsomely laid in hydraulic cement. The work is firm and substantial, capable of bearing any pressure that will ever be put upon it. This specimen of the masonry is highly creditable

to the contractors. There are now between seven and eight hundred men employed on the earth excavations, which are to be prosecuted with energy through the winter.

*The State Bridge at Clark's Ferry.*—The towing path and road bridge across the Susquehannah, which connects the Pennsylvania canal at Clark's Ferry, and which was destroyed by fire during the present year, has been re-built, and is now in use for travel.—The Harrisburg Union says:

This new bridge is built on the Burr plan, with the exception of the bracing, which is different from any heretofore used. It is an elegant and substantial structure, and will compete in mechanism with any similar work in the state. It is 21 feet in length, and to secure it against floods, the piers have been raised three feet and the ice breakers seven feet over their former height, being an increase in the masonry of over 1500 perches. The time occupied in the completion of the work was only four months from the period the framing was commenced until the first stage passed over the roadway.

This bridge was constructed under the direction of our townsman, Samuel Holman, Esq, the supervisor of the line, and is as creditable to his skill as a mechanic, as it is to his industry and efficiency as a public officer. He has thus given us another evidence that his reputation as a bridge builder is only equalled by that which he has already acquired as an architect and builder of private and public edifices.

The canal commissioners are entitled to much praise for the energy and promptitude which they manifested in ordering the speedy construction of this bridge, and thereby removing a serious impediment to the uninterrupted use of an important portion of the canal.

*Androscoggin and Kennebec Railroad.*—A meeting of the corporators and subscribers to the stock of the above road, was held at Lewiston on the 9th ult. It was very fully attended by delegates from Waterville, Fairfield, Belgrade, Winthrop, Leeds, Greene, Lewiston, etc. It was voted to make a formal opening of the books on the 10th. A delegation from the Atlantic and St. Lawrence road met them, who were authorized to make liberal offers on their part. This offer involved the question of broad and narrow gauge, and an animated discussion arose in which Messrs. Preble, Boutelle, Benson, Clark, Taylor, Pierson, Small, Little, Garcelon, Foster and others participated. Nothing definite, however, was done, and the meeting adjourned to meet at the town house in Waterville, on the 29th of this month, at 10 o'clock, for further consideration of the subject, and also to organize the company.

*Central Route from Boston to New York.*—The Bostonians are determined to have a direct central route for travel thence to New York city, and have taken hold of the matter in earnest. Surveys have been made for an independent route, passing through Roxbury, Dedham, Medfield, Franklin and Medway to Blackstone, thence directly to the Connecticut state line, connecting with such routes in Connecticut as shall offer the best and shortest route. This road connects with the Harlem railroad at Harlem, and with the Housatonic railroad at Bridgeport, 18 miles from New Haven, distance from New Haven to Harlem, 62 miles.—*Hartford paper.*

We are informed that there is a company organized to extend the telegraph west from Buffalo. The Erie and Michigan telegraph company propose to extend their line from Buffalo, N. Y., to Milwaukie, Wisconsin, passing through Dunkirk, Erie, Cleveland, Huron, Sandusky, Toledo, Detroit and Chicago. Stock is to be issued equal to $250 per mile, adding thereto $20,000 as a reserve fund, the shares to be $50 each. The line is to be constructed of strong iron cords. A line from Buffalo to Toronto, has been commenced.—The distance will be about 100 miles.—*Scientific American.*

The counties and towns on the line of the Cleveland and Columbus railroad have subscribed towards making the work. Knox county has subscribed $100,000; the town of Mount Vernon will subscribe $50,000; and doubtless other towns and counties will lend their aid.

We learn from the Worcester Spy that most of the grading and masonry of the Worcester and Nashua road are put under contract at rates within the estimates of the engineers, and the contractors agree to take 20 per cent. of the amount in the capital stock of the company. The contracts that have been made are to be completed in November next.

The capital stock of the Attica and Hornelsville railroad has all been subscribed—$250,000 having been readily taken at Buffalo. This road is to connect the Albany and Buffalo railroad at Attica, with the N. York and Erie railroad at Hornelsville.

*Telegraph to Pittsburg.*—Mr. O'Reilly states that the telegraph from Philadelphia to Pittsburg will be completed by the 25th of this month and in operation, at the latest, on the 1st of January. We shall then receive our western news a day in advance, by telegraph from Philadelphia.—*Pittsburg paper.*

*The Northern Railroad.*—The Boston Post says that a party of directors, etc., will pass over this road to Franklin to-morrow, Friday, and on Saturday the stockholders will take a view of their property. It is understood that the cars will run to Frankfort next week.

We learn from the Boston Post that the railroad commissioners have decided to locate the Nashua and East Wilton railroad and proceed to award damages for land taken thereby. We are informed that preparations are making by the Lowell and Nashua company for the construction of this branch, and purchases of sleepers, etc., made, so that permission from the legislature will only be needed to ensure its completion.

*Maine Railroads.*—The Gardiner, (Me.,) Blade, states that upward of $75,000 have been subscribed in Waterville to the stock of the Androscoggin and Kennebec railroad and it is expected that before many weeks the subscription will reach $100,000. The people are wide awake for the enterprize, and are moving forward with great unanimity and energy, as well as with the utmost confidence of success. We learn that in Fairfield, also, and in Scowhehan, Norirdgewock, and the adjoining towns, the friends of the enterprize are getting up a good deal of steam in its favor.

Our own enterprize, adds the Blade, the P. and K. railroad, has received a new impetus in Gardiner, of late, and the subscriptions have been materially increased. We are confident our town will not long lag behind its neighbors, in its zeal and enthusiasm for the project, but will soon come up to the work in a style that will be a caution to steamboats.

*Northern Railroad.*—A correspondent of the Lowell Journal says, the work on the Northern railroad is progressing rapidly, and thinks the trains may be run as far as Franklin this month.

*Valuable Improvement in Saw Mills.*—Messrs. Morrison & Cushing, of Frankfort, Me., have recently secured a patent for a valuable improvement in saw mills, which is of great utility, and far superior to the usual methods of feeding logs through gang saws. Manufacturers of timber state that the new invention will be a great saving of time, labor, material and expense in their business.

*Strength of Materials for Boilers, Copper.*—The strength or cohesive power of copper plates for boilers, is about 30,000 lbs. per square inch of area. Heated to the temperature of 550 degrees it is weakened one-fourth, and at the temperature of 800 degrees one-half.

*Iron.*—The best iron boiler plates have a cohesive power of 60,000 lbs. per square inch of area, and a common or inferior article one-sixth less. The tenacity of iron increases at a moderate degree of temperature.

*Weather-proof Cement.*—Take of fine sand one part, clay two parts, and sifted wood ashes three parts; mix with linseed, cotton seed or palm oil to the consistency required, and put on with a trowel or stiff brush. It is said to be equal in durability, when exposed to the weather, to marble.

A large establishment, called the Clinton Iron Works, has been put in operation near Pittsburg, Pa., by Cuddy, Jones & Co. It contains eleven furnaces, and will consume twelve tons of pig iron per day in the manufacture of bar, boiler, sheet and all sizes of small iron. A nail factory in one of the wings of the building has eight machines in operation. The fly-wheel of the engine in use in the works weighs twenty-three tons, and measures thirty-two feet in diameter.

RAILROAD IRON.—THE "MONTOUR Iron Company," Danville, Pa., is prepared to execute orders for the heavy Rail Bars of any pattern now in use, in this country or in Europe, and equal in every respect in point of quality. Apply to MURDOCK, LEAVITT & CO., *Agents.*
Corner of Cedar and Greenwich Sts. 48 1y

**SPRING STEEL FOR LOCOMOTIVES,** Tenders and Cars. The Subscriber is engaged in manufacturing Spring Steel from 1¼ to 6 inches in width, and of any thickness required: large quantities are yearly furnished for railroad purposes, and wherever used, its quality has been approved of. The establishment being large, can execute orders with great promptitude, at reasonable prices, and the quality warranted. Address

JOAN F. WINSLOW, *Agent*,
1y Albany Iron and Nail Works,

**RAILROAD IRON.**—1000 TONS HEAVY H Railroad Iron, 60 lbs. per lineal yard, expected to arrive within the next 30 days. Apply to

DAVIS, BROOKS & CO.,
October 9. [10t42] 68 Broad St.

ENGINEER'S OFFICE PHILA. WIL. & BALT. R. R. }
*Wilmington, Del., November* 18, 1846. }

**PROPOSALS** ARE INVITED FOR THE manufacture and delivery in Wilmington, of One Thousand Tons of Rails—to be made of the best iron used for rails, i. e., combining stiffness and toughness—and rolled so as to be perfectly sound, and exempt from flaws and liability to split at ends or intermediate points, or to crush or "spawl off," on the top surface.

Credits from delivery of six, nine, and twelve months—or discount of six per cent. for cash. Iron for wrought iron fastenings at ends to be included in the price of rails, viz: bars about 2 x ½ inch and ¾ round iron, of best quality, for bolts.

Special contracts to be made on bills being accepted—rails of T form, about 62 lbs. per yard, and in lengths as follows:

| | | | | |
|---|---|---|---|---|
| 80 | per cent. | of | the | whole.....20 feet. |
| 10 | " | " | " | .....18 " |
| 5 | " | " | " | .....16 " |
| 5 | " | " | " | .....14 to 15 feet. |

The inferior lengths are allowed, to work up such bars as may be defective at ends, Rails, etc., to be subject to inspection.

Proposals to be sent to the undersigned on or before the 10th day of December next.

J. R. TRIMBLE,
4t48 Engineer and Superintendent.

**RAILWAY IRON.—DAVIS, BROOKS** & Co., No. 68 Broad Street, have now in port on Ship-board, 200 Tons of the best English heavy H Rails, 60 lbs. to the lineal yard, which they offer for sale on favorable terms, *also*, about 6 to 700 Tons now on the way, to arrive shortly, of the same description of Rail.

*Nov.* 16, 1846. 46tf

**CHAMPLAIN AND CONNECTICUT RI**ver Railroad.—Notice to Contractors.—Proposals will be received until the 1st day of January, 1847, for the Grading, Masonry and Bridging of that part of the line of the *Champlain and Connecticut River Railroad*, extending from its termination at Bellows Falls, up to, and including, the Summit at Mount Holly, a distance of about 34 miles—and also from its termination at Burlington to the Village of Brandon, a distance of about 50 miles.

Maps, Profiles and Specifications of the respective divisions will be found after the 15th of December, in the office of the company at Burlington, and at the office of Hon. William Henry, Bellows Falls, where every necessary information will be given.

The line will be divided into sections of convenient length for construction, and from those to whom the lettings may be awarded, satisfactory security will be required. By order of the Board,

T. FOLLETT, President.

Office of the Champlain and Conn. R. R.R.Co. }
5t49 Burlington, November 21, 1846. }

**TWO LOCOMOTIVE AND MARINE EN**gine Boiler Builders. Pascal Iron Works, Philadelphia. Welded Wrought Iron Flues, suitable for Locomotives, Marine and other Steam Engine Boilers, from 2 to 5 inches in diameter. Also, Pipes for Gas, Steam and other purposes; extra strong Tube for Hydraulic Presses; Hollow Pistons for Pumps of Steam Engines, etc. Manufactured and for sale by

MORRIS TASKER & MORRIS,
Warehouse S. E. corner 3d and Walnut Sts., Philadelphia. 1tf

**PATENT INDESTRUCTIBLE WATER** Pipes. The subscribers continue to manufacture the above PIPES, of all the sizes and strength required for City or Country use, and would invite individuals or companies to examine its merits.—This pipe, unlike cast iron and lead, imparts neither color, oxide or taste, being formed of strongly riveted sheet iron, and evenly lined on the inside with hydraulic cement. While in the process of laying, it has a thick covering externally of the same—thus forming nature's own conduit of stone. The iron being thoroughly enclosed on both sides with cement, precludes the possibility of rust or decay, and renders the pipe truly *indestructible*. The prices are less than those of iron or lead. We also manufacture Basons and D. Traps, for Water Closets, on a new principle, which we wish the public to examine at 112 Fulton street, New York.

28tf J. BALL & CO.

**NICOLL'S PATENT SAFETY SWITCH** for Railroad Turnouts. This invention, for some time in successful operation on one of the principal railroads in the country, effectually prevents engines and their trains from running off the track at a switch, left wrong by accident or design.

It acts independently of the main track rails, being laid down, or removed, without cutting or displacing them.

It is never touched by passing trains, except when in use, preventing their running off the track. It is simple in its construction and operation, requiring only two Castings and two Rails; the latter, even if much worn or used, not objectionable.

Working Models of the Safety Switch may be seen at Messrs. Davenport and Bridges, Cambridgeport, Mass., and at the office of the Railroad Journal, New York.

Plans, Specifications, and all information obtained on application to the Subscriber, Inventor, and Patentee

G. A. NICOLLS,
ja45 *Reading, Pa.*

**RAILROAD IRON.**—THE SUBSCRIBER'S New Rail Iron Mill at Phœnixville, Pa., is expected to be ready to go into operation by the 1st of September, and will be capable of turning out 30 to 40 tons or finished Rails per day. They are now prepared to receive orders to that extent, deliverable after the 1st of Octobet next, for heavy rails of any pattern now in use, equal in quality and finish to best imported.

PIG IRON.—They are also receiving weekly 150 to 200 tons of No. 1 Phœnix Foundry Iron, well adapted for light castings.

REEVES, BUCK & CO,
45 North Water St., Philadelphia,
or by their Agent, ROBT. NICHOLS,
28tf 79 Water St., New York

**THE SUBSCRIBERS, AGENTS FOR** the sale of

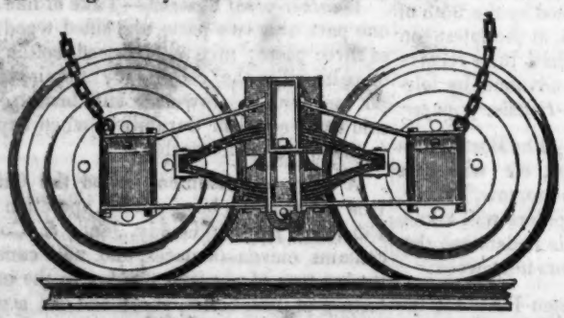
Codorus,
Glendon,
Spring Mill and
Valley,
} Pig Iron.

Have now a supply, and respectfully solicit the patronage of persons engaged in the making of Machinery, for which purpose the above makes of Pig Iron are particularly adapted.

They are also sole Agents for Watson's celebrated Fire Bricks and prepared Kaolin or Fire Clay orders for which are promptly supplied.

SAM'L. KIMBER, & CO.,
59 North Wharves,
*Jan.* 14, 1846. [1y4] *Philadelphia, Pa.*

**RAY'S EQALIZING RAILWAY TRUCK.—THE SUBSCRI**ber having recently formed a business connection in the City of New York, expressly for the manufacture of the newly patented and highly approved Railroad Truck of Mr. Fowler M. Ray, is ready to receive orders for building the same, from Railroad Companies and Car Builders in the United States, and elsewhere.



The above Truck has now been in use from one to two years on several roads a sufficient length of time to test its durability, and other good qualities, and to satisfy those who have used it, as may be seen by reference to the certificates which follow this notice.

There have been several improvements lately introduced upon the Truck, such as additional springs in the bolster of passenger cars, making them delightful riding cars—adapting it to tenders, trucks forward of the locomotive, and freight cars, which, with its original good qualities, make it in all respects the most desirable truck now offered to the public.

Orders for the above, will, for the present, be executed at the New York Screw Mill, corner 33d street and 3d avenue, (late P. Cooper's rolling mills) and at the Steam Engine Shop of T. F. Secor & Co., foot of 9th street, East river, (of which firm the subscriber was late a partner) under the immediat supervision of Mr. Ray himself.

Several sets of trucks containing the latest improvements have recently been turned out for the New York and Erie railroad, and the New Jersey Transportation company, which may be seen upon said roads.

The patronage of Railroad Companies and Car Builders is respectfully solicited.

*New York, May* 4, 1846. W. H. CALKINS, and Others.

To all whom it may concern:—This is to certify that the New Haven, Hartford and Springfield railroad co., have had in use six sets of F. M. Ray's patent trucks for the last 20 months, during which time it appears to me, they have proved to be the bes and most economical truck now in use.

[Signed,] WILLIAM ROE, Sup't of Power.

I certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Philadelphia and Reading railroad for some time past, under a passenger car.

For simplicity of construction, economy in cost, lightness of material, and extreme ease of motion, I consider it the best truck we have ever used. Its peculiar make also renders it less liable to be thrown off the track, when passing over any obstruction. We intend using it extensively under the passenger and freight cars of the above road.

*Reading, Pa., October* 6, 1845. [Signed,] G. A. NICOLL,
Sup,t Transportation, etc., Philadelphia and Reading Railroad.

To all whom it may concern:—This is to certify that the N. Jersey Railroad and Transportation company have used Fowler M. Ray's Truck for the last seven months, during which time it has operated to our entire satisfaction. I have no hesitation in saying that it is the simplest and most economical truck now in use. [Signed,] T. L. SMITH,

*Jersey City, November* 4, 1845. N. Jersey Railroad and Transp. Co.

This is to certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Long Island railroad for the last year, under a freight car.

For simplicity of construction, economy in cost, lightness of material and ease of motion, I consider it equal to any truck we have in use.

*Long Island Railroad Depot, Jamaica November* 12, 1845. } [Signed,] JOHN LEACH,
1y19 Sup't Motive Power.

## RICH & CO'S IMPROVED PATENT SALAMANDER SAFES.

Warranted free from dampness, as well as fire and thief proof.

Particular attention is invited to the following certificates, which speak for themselves:

TEST No. 10.

*Certificate from Mr. Silas C. Field, of Vicksburgh, Mississippi.*

On the morning of the 14th ult., the store owned and occupied by me in this city, was, with its contents, entirely consumed by fire. My stock of goods consisted of oil, rosin, lard, pork, sugar, molasses, liquors, and other articles of a combustible nature, in the midst of which was one of Rich's Improved Patent Salamander Safes, which I purchased last October of Mr. Isaac Bridge, New Orleans, and which contained my books and papers. This safe was red hot, and did not cool sufficiently to be opened until 16 hours after it was taken from the ruins. At the expiration of that time it was unlocked, when its contents proved to be entirely uninjured, and not even discolored. I deem this test sufficient to show that the high reputation enjoyed by Rich's Safes is well merited. S. C. FIELD.

TEST No. 11.—*Certificate.*

By the fire which occurred in this village on the 27th July last, our Law Office, together with many other buildings, was destroyed—we had in our office one of Rich's *Improved* Patent Salamander Safes, which, though heated red hot, preserved, without being the least damaged, many papers valuable to our clients—the envelopes of a few papers being *slightly* scorched. Some twenty-four hours after the fire, the Safe was removed, and so hot was it, that several hours were required for it to cool off. Our office was in the second story of a large brick building, all the wood used in construction of said house being *pitch pine.* While the Safe was red hot, one of the walls tumbled in, and so injured the lock that it was necessary to break the door open. From this test, we feel no hesitancy in recommending "Rich's Patent Salamander Safe" as *entirely fire proof.*

GOREE & KLIG.

Marion, Ala., Sept. 15th, 1846.

*Still other Tests in the Great Fire of July* 19, 1845.

The undersigned purchased of A. S. Martin, No. 138½ Water street, one of Rich's Improved Patent Salamander Safes, which was in our store, No. 54 Exchange place. The store was entirely consumed in the great conflagration on the morning of the 19th inst. The safe was taken from the ruins 52 hours after, and on opening it, the books and papers were found entirely uninjured by fire, and only slightly wet—the leather on some of the books was parched by the extreme heat. RICHARDS & CRONKHITE.

Benton, Miss., December 27, 1845.

One of Rich's Improved Salamander Safes, which I purchased on the 2d of June last of A. S. Marvin, 138½ Water street, agent for the manufacturer, was exposed to the most intense heat during the late dreadful conflagration. The store which I occupied, No. 46 Broad street, was entirely consumed; the safe fell from the 2d story, about 15 feet, into the cellar, and remained there 14 hours, and when found, I am told, and from its appearance afterwards, should judge that it had been heated to a red heat. On opening it, the books and papers were found not to have been touched by fire. I deem this ordeal sufficient to confirm fully the reputation that Rich's safe has already obtained for preserving its contents against all hazards. (Signed,)

WM. BLOODGOOD.

New York, 21st July, 1845.

Reference made to upwards of nine hundred and fifty merchants, cashiers, brokers, and officers of courts and counties, who have Rich's Safe's in use.

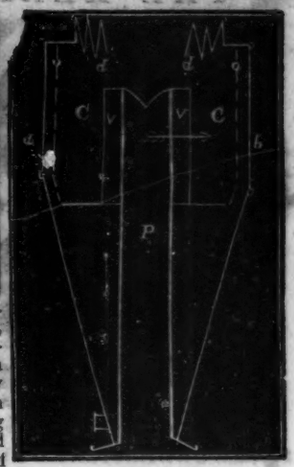
The above safes are finished in the neatest manner, and can be made to order at short notice, of any size and pattern, and fitted to contain plate, jewelry, etc. Prices from $50 to $500 each. For sale by

A. S. MARVIN, General Agent,
138½ Water st., N. Y.

Also by Isaac Bridge 76 Magazine street, New Orleans.

Also by Lewis M Hatch, 120 Meeting street Charleston, S. C. 16 tf

## *FRENCH AND BAIRD'S PATENT SPARK ARRESTER.*




TO THOSE INTERESTED IN Railroads, Railroad Directors and Managers are respectfully invited to examine an improved SPARK ARRESTER, recently patented by the undersigned.

Our improved Spark Arresters have been extensively used during the last year on both passenger and freight engines, and have been brought to such a state of perfection that no annoyance from sparks or dust from the chimney of engines on which they are used is experienced.

These Arresters are constructed on an entirely different principle from any heretofore offered to the public. The form is such that a rotary motion is imparted to the heated air, smoke and sparks passing through the chimney, and by the centrifugal force thus acquired by the sparks and dust they are separated from the smoke and steam, and thrown into an outer chamber of the chimney through openings near its top, from whence they fall by their own gravity to the bottom of this chamber; the smoke and steam passing off at the top of the chimney, through a capacious and unobstructed passage, thus arresting the sparks without impairing the power of the engine by diminishing the draught or activity of the fire in the furnace.

These chimneys and arresters are simple, durable and neat in appearance. They are now in use on the following roads, to the managers and other officers of which we are at liberty to refer those who may desire to purchase or obtain further information in regard to their merits:

R. L. Stevens, President Camden and Amboy Railroad Company; Richard Peters, Superintendant Georgia Railroad, Augusta, Ga.; G. A. Nicolls, Superintendant Philadelphia, Reading and Pottsville Railroad, Reading, Pa.; W. E. Morris, President Philadelphia, Germantown and Norristown Railroad Company, Philadelphia; E. B. Dudley, President W. and R. Railroad Company, Wilmington, N. C.; Col. James Gadsden, President S. C. and C. Railroad Company, Charleston, S. C.; W. C. Walker, Agent Vicksburgh and Jackson Railroad, Vicksburgh, Miss.; R. S. Van Rensselaer, Engineer and Sup't Hartford and New Haven Railroad; W. R. M'Kee, Sup't Lexington and Ohio Railroad, Lexington, Ky.; T. L. Smith, Sup't New Jersey Railroad Trans. Co.; J. Elliott, Sup't Motive Power Philadelphia and Wilmington Railroad, Wilmington, Del.; J. O. Sterns, Sup't Elizabethtown and Somerville Railroad; R. R. Cuyler, President Central Railroad Company, Savannah, Ga.; J. D. Gray, Sup't Macon Railroad, Macon, Ga.; J. H. Cleveland, Sup't Southern Railroad, Monroe, Mich.; M. F. Chittenden, Sup't M. P. Central Railroad, Detroit, Mich; G. B. Fisk, President Long Island Railroad, Brooklyn.

Orders for these Chimneys and Arresters, addressed to the subscribers, care Messrs. Baldwin & Whitney, of this city or to Hinckly & Drury, Boston, will be promptly executed. FRENCH & BAIRD.

N. B.—The subscribers will dispose of single rights, or rights for one or more States, on reasonable terms.

*Philadelphia, Pa., April* 6, 1844.

*** The letters in the figures refer to the article given in the *Journal* of June, 1844. ja45

PATENT HAMMERED RAILROAD, SHIP and Boat Spikes. The Albany Iron and Nail Works have always on hand, of their own manufacture, a large assortment of Railroad, Ship and Boat Spikes, from 2 to 12 inches in length, and of any form of head. From the excellence of the material always used in their manufacture, and their very general use for railroads and other purposes in this country, the manufacturers have no hesitation in warranting them fully equal to the best spikes in market, both as to quality and appearance. All orders addressed to the subscriber at the works, will be promptly executed. JOHN F. WINSLOW, *Agent.*

Albany Iron and Nail Works, Troy, N. Y.

The above spikes may be had at factory prices, of Erastus Corning & Co., Albany; Hart & Merritt, New York; J. H. Whitney, do.; E. J. Etting, Philadelphia; Wm. E. Coffin & Co, Boston. ja45

MACHINE WORKS OF ROGERS, Ketchum & Grosvenor, Patterson, N. J. The undersigned receive orders for the following articles, manufactured by them of the most superior description in every particular. Their works being extensive and the number of hands employed beinglarge, they are enabled to execute both large and small orders with promptness and despatch.

Railroad Work.

Locomotive steam engines and tenders; Driving and other locomotive wheels, axles, springs & flange tires; car wheels of cast iron, from a variety of patterns, and chills; car wheels of cast iron with wrought tires; axles of best American refined iron; springs; boxes and bolts for cars.

Cotton, Wool and Flax Machinery

of all descriptions and of the most improved patterns, style and workmanship.

Mill gearing and Millwright work generally; hydraulic and other presses; press screws; callenders; lathes and tools of all kinds; iron and brass castings of all descriptions.

ROGERS, KETCHUM & GROSVENOR,
a45 Paterson, N. J., or 60 Wall street, N. York.

PATENT RAILROAD, SHIP AND BOAT Spikes. The Troy Iron and Nail Factory keeps constantly for sale a very extensive assortment of Wrought Spikes and Nails, from 3 to 10 inches, manufactured by the subscriber's Patent Machinery, which after five years' successful operation, and now almost universal use in the United States (as well as England, where the subscriber obtained a patent) are found superior to any ever offered in market.

Railroad companies may be supplied with Spikes having countersink heads suitable to holes in iron rails, to any amount and on short notice. Almost all the railroads now in progress in the United States are fastened with Spikes made at the above named factory—for which purpose they are found invaluable, as their adhesion is more than double any common spikes made by the hammer.

All orders directed to the Agent, Troy, N. York will be punctually attended to.

HENRY BURDEN, *Agent.*

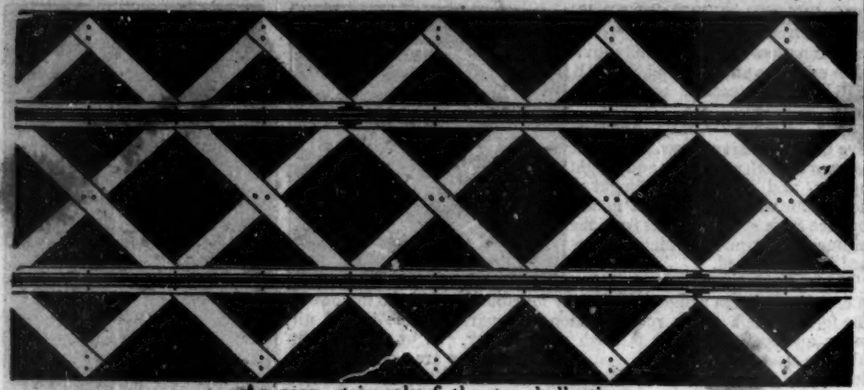
Spikes are kept for sale, at Factory Prices, by I. & J. Townsend, Albany, and the principal Iron merchants in Albany and Troy; J. I. Brower, 222 Water St., New York; A. M. Jones, Philadelphia; T. Janviers, Baltimore; Degrand & Smith, Boston.

*** Railroad Companies would do well to forward their orders as early as practicable, as the subscriber is desirous of extending the manufcturing so as to keep pace with the daily increasing demand. ja45

DAVENPORT & BRIDGES CONTINUE to Manufacture to Order, at their Works, in Cambridgeport, Mass., Passenger and Freight Cars of every description, and of the most improved pattern. They also furnish Snow Ploughs and Chilled Wheels of any patterr and size. Forged Axles, Springs, Boxes and Bolts for Cars at the lowest prices. All orders punctually executed and forwarded to any part of the country.

Our Works are within fifteen minutes ride from State street, Boston—coaches pass every fifteen minutes. 1y1

## THE HERRON RAILWAY TRACK,



As seen stripped of the top ballasting

A GOLD MEDAL AWARDED THE INVENTOR BY THE AMERICAN INSTITUTE.

THE UNDERSIGNED RESPECTFULLY invites the attention of Engineers, and Railroad Companies, to some highly important improvements he has recently made in the Herron system of Railway structure. These improvements enable him to effect a very large reduction in the quantity of Timber, and cost of construction, without impairing the strength of the Track, or its powers of resisting frost, while they secure additional features of excellence in the Drainage and facility of making Repairs.

The above cut represents the "Herron Track" as it is laid on the Philadelphia and Reading, and on the Baltimore and Susquehanna Railroads. The intersection of the sills of the trellis are 5 feet from centre to centre, while in the new construction they are only 2½ feet. This renders the string piece unnecessary, thus removing the only objectionable feature found in the Track.

The result of experience has proved that all Tracks constructed with longitudinal timbers, such as mud sills, and more especially, the continuous bearing string pieces retain the rain water that falls between the Rails, which, being thus confined, settles along those timbers, and accumulating in quantity flows rapidly along them on the descending grades, washing out the earth from under the timber, and frequently causing large breaches in the embankments of the road. Whereas all water intercepted by the oblique sills of the trellis, is discharged immediately into the side ditches.

In the 5 foot plan, the Track occupies a Road bed nearly 11 feet wide, while the new construction takes but 8 feet; the timber being more concentrated under the Rails. A block of hard wood, about 2 feet long and 15 inches wide, is introduced into a square of the trellis for the purpose of giving an additional, and effectual support to the joints of the Rails, which rest upon it. Should these joint blocks become chafed and worn by the working, and imbedding of the chairs, as is now the case on all Railroads, they can be readily replaced without any derangement of the timbers less liable to wear.

The following is a general estimate of its cost near the seaboard. In the interior it will be considerably less.

ESTIMATE OF THE PROBABLE COST OF ONE MILE.

| | |
|---|---|
| 4,224 Timbers, 11 ft. long, 3 x 6 inches = 68,696 ft. b.m., at $10 = | $686 96 |
| 587 Oak joint blocks 2 ft. x 3 x 15 in. = 4,403 ft. b.m., at $13 = | 57 24 |
| 13,000 Spikes = 2,250 lbs. at 4½ cts | 101 25 |
| Workmanship free of patent charge | 600 00 |
| Cost of one mile including the laying of the Rail | $1,445 45 |

He has made other important improvements, which will be shown in properly proportioned models, that give a much better idea of the great strength of the Track than a drawing will do.

Sales of the Patent right to all the distant States will be made on liberal terms.

JAMES HERRON.
*Civil Engineer and Patentee.*
*No. 277 South Tenth St., Philadelphia.* 33tf

ENGLISH PATENT WIRE ROPES—FOR THE USE OF MINES, RAILWAYS, ETC.—for sale or imported to order by the subscriber.

These Ropes are manufactured on an entirely different principle from any other, and are now almost exclusively used in the collieries and on the railways in Great Britain, where they are considered to be greatly superior to hempen ones, or iron chains, as regards safety, durability and economy. The plan upon which they are made effectually secures them from corrosion in the interior, as well as the exterior of the rope, and gives a greater compactness and elasticity than is found in any other manufacture.

Many of these ropes have been in constant operation in the different mines in England, and on the Blackwall and other inclined planes, for three and four years, and are still in good condition.

They have been applied to almost every purpose for which hempen ropes have been used—mines, heavy cranes, standing rigging, window cords, lightning conductors, signal halyards, tiller ropes, etc. Reference is made to the annexed statement for the relative strength and size. Testimonials from the most eminent engineers in England can be shown as to their efficiency, and any additional information required respecting the different descriptions and application will be given by

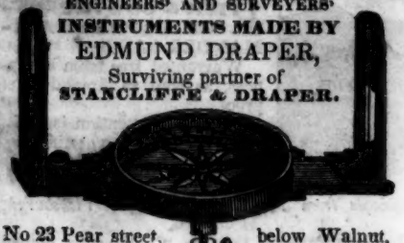
ALFRED L. KEMP,
75 Broad street, New York, sole agent in the United States.

*Statement of Trial made at the Woolwich Royal Dock Yard, of the Patent Wire Ropes, as compared with Hempen Ropes and Iron Chains of the same strength.—October, 1841.*

| WIRE ROPES. | | | | HEMPEN ROPES. | | | CHAINS. | | STRENGTH |
|---|---|---|---|---|---|---|---|---|---|
| Wire gauge number. | Circumference of rope. | Weight per fathom. | | Circumference of rope. | Weight per fathom. | | Weight per fathom. | Diameter of iron. | Tons. |
| | INCH. | LBS. | OZ. | INCH. | LBS. | OZ. | LBS. | INCH. | |
| 11 | 4½ | 13 | 5 | 10 | 24 | – | 50 | 15-16 | 20 |
| 13 | 3½ | 8 | 3 | 8½ | 16 | – | 27 | 11-16 | 13½ |
| 14 | 3½ | 6 | 11 | 7½ | 12 | 8 | 17 | 9-16 | 10½ |
| 15 | 2½ | 5 | 2 | 6½ | 9 | 4 | 13½ | 1-2 | 7½ |
| 16 | 2½ | 4 | 3 | 6 | 8 | 8 | 10½ | 7-16 | 7 |

*N.B. The working load, with a perpendicular lift, may be taken at 6 cwt. for every lb. weight per fathom, so that a rope weighing 5 lbs. per fathom would safely lift 3360 lbs., and so on in proportion.* 1y24

ENGINEERS' AND SURVEYERS'
INSTRUMENTS MADE BY
EDMUND DRAPER,
Surviving partner of
STANCLIFFE & DRAPER.



No 23 Pear street, below Walnut,
1y10 near Third, Philadelphia.

LAP—WELDED
WROUGHT IRON TUBES
FOR
TUBULAR BOILERS,
FROM 1 1-4 TO 6 INCHES DIAMETER,
and
ANY LENGTH, NOT EXCEEDING 17 FEET.

These Tubes are of the same quality and manufacture as those so extensively used in England, Scotland, France and Germany, for Locomotive, Marine and other Steam Engine Boilers.

THOMAS PROSSER,
*Patentee.*
1y25 28 Platt street, New York.

**ENGINEERS and MACHINISTS.**

THOMAS PROSSER, 28 Platt St. N. Y. (*See Adv.*)
J. F. WINSLOW, Albany Iron and Nail Works Troy, N. Y. (*See Adv.*)
TROY IRON AND NAIL FACTORY, H. Burden, Agent. (*See Adv.*)
ROGERS, KETCHUM & GROSVENOR, Patterson, N. J. (*See Adv.*)
S. VAIL, Speedwell Iron Works, near Morristown, N. J. (*See Adv.*)
NORRIS, BROTHERS, Philadelphia Pa. (*See adv.*)
FRENCH & BAIRD, Philadelphia. (*See Adv.*)
NEWCASTLE MANUFACTURING COMPANY, Newcastle, Del. (*See Adv.*)
ROSS WINANS, Baltimore, Md.
CYRUS ALGER & Co., South Boston Iron Co.
SETH ADAMS, Engineer, South Boston.
STILLMAN, ALLEN & Co., N. Y.
JAS. P. ALLAIRE, N. Y.
PHŒNIX FOUNDRY, N. Y.
ANDREW MENEELY, West Troy.
JOHN F. STARR, Philadelphia, Pa.
MERRICK & TOWNE, do.
HINCKLEY & DRURY, Boston.
C. C. ALGER, Stockbridge Iron Works Stockbridge, Mass.

**THE AMERICAN RAILROAD JOURNAL** is the only periodical having a general circulation throughout the Union, in which all matters connected with public works can be brought to the notice of all persons in any way interested in these undertakings. Hence it offers peculiar advantages for advertising times of departure, rates of fare and freight, improvements in machinery, materials, as iron, timber, stone, cement, etc. It is also the best medium for advertising contracts, and placing the merits of new undertakings fairly before the public.

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